ABSTRACT

Title of Dissertation: ACHIEVEMENT GOAL ORIENTATIONS IN PHYSICAL REHABILITATION

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Goals are used extensively in physical rehabilitation medicine to measure success. However, the goal construct has been given very little attention in research as compared to the domains of education and sport. Educational researchers and sport psychologists have described the cognitions and relations between goals, beliefs, motivation, and achievement behavior for their respective domains. In particular, goal orientation, a set of beliefs about ability, effort, achievement, and resulting behavior, is a dimension of achievement motivation that affects success in those fields. Goal orientation may influence participation and success in physical rehabilitation as there are aspects of physical rehabilitation that are similar to education and sport contexts. This study examined goal orientations for 237 patients receiving acute in-patient rehabilitation. A questionnaire was created and validated to assess goal or work orientations specific to this sample. Interview data supplemented results from the factor analysis of the questionnaire. Occupational therapists of the patient participants provided quantitative and qualitative data regarding their patients' success and factors related to success. The mastery and performance-avoid goal orientations and the cooperation work orientation were found with the highest frequency. However, none of these orientations related to

success. The high frequency of the cooperation work orientation with interview comments validating the usefulness of this motivational aspect provides evidence for the use of groups in rehabilitation. The age of the participant significantly influenced three of the five goal or work orientations included in the study. This study provides a start in the investigation of additional dimensions to the goal construct that may affect participation and rehabilitation success.

ACHIEVEMENT GOAL ORIENTATIONS

IN PHYSICAL REHABILITATION

By

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DEDICATION

I would like to dedicate this dissertation to my mother and father, Mr. and Mrs. Miller Lawson. They encouraged and pushed to help me over the "lows" of completing a dissertation. Many times they sacrificed family gatherings in lieu of allowing me time to work on my dissertation. They fed me, cleaned my house, and took care of me when life events were too much to overcome at several points during this process. In the end, they did share in the writing of this dissertation, figuratively speaking. They lived through every edit or re-write that was needed. They cried when the writing and the defense was completed. They expressed their pride in my accomplishments. They now have a doctor (PhD) in the family!

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CHAPTER I

INTRODUCTION

Achievement and the processes by which individuals succeed at achievement tasks are important areas of study for many domains, from academics and sports (e.g., Ames & Archer, 1988; Duda & Nicholls, 1992; Dweck, 1986; Treasure & Roberts, 1995) to business and health (e.g., Albrecht & Higgins, 1977; Ponte-Allan & Giles, 1999; Vandewalle, 1997; Welsenfeld & Killough, 1992). The many facets of achievement have been studied from a variety of perspectives within these domains including: the definitions of achievement, the formulation of achievement tasks, and achievement behavior.

In studying achievement in health care, simultaneous paths of inquiry should center on examining the aforementioned areas from the view points of health care providers and individuals receiving the care. Examining achievement in health care from the recipient's perspective is important because many factors (e.g., cultural preferences, psychological processes and cognitive processes) influence health care practices among individuals and groups (Huff & Kline, 1999). A review of the literature on achievement in health care reveals that the achievement behavior of individuals receiving health related services has been loosely researched.

Most research in the area of achievement behavior in health care was completed from the fields of psychology and rehabilitation counseling. These fields focused on studying the psychological impact of a physical illness or disease (e.g., Fogel & Rosillo, 1969; Roessler, 1980). A somewhat different perspective, which has been studied to a lesser degree, is the thoughts or cognitions related to the tasks of coping with a disability.

The cognitions associated with illness or disabilities are different than the emotions associated with illness and disability. For example, a person can feel depressed from the impact of a sudden illness. However, a person can, instead, adapt to illness and decide to learn new ways of living and make decisions to this end. The latter example pertains to cognitions rather than emotions and provides some information about the motivation of that person. If investigating achievement in health care in terms of understanding the definitions of achievement, formulation of achievement tasks, and achievement behavior, it becomes important to understand how individuals perceive good health and how they are motivated to work on improving their health.

Definitions of Success for Health

Motivational and cognitive aspects involved in physical rehabilitation are of particular interest for the present study. Rehabilitation is a subset of the health care system. It is a part of health care where there are many people involved in helping disabled persons improve their health and functioning (Albrecht & Higgins, 1977). It is also an area of health care where the patient must be actively involved for a concentrated length of time. In rehabilitation, active participation is required. However, if one spends a day in a rehabilitation hospital, it is quickly noticed that there are many patients who do not actively participate in their rehabilitation programs. For some patients, a great deal of difficulty is involved in gaining their participation in therapy sessions or to practice skills on their own. What drives these patients from engaging in their rehabilitation program? In addition to the psychological and emotional adjustment that transpires during the rehabilitation process, perhaps there are differences in how improvement, progress, or success is construed between the patient and the health care providers.

In preparing for the present study, literature was reviewed to gain an understanding of how success is defined in rehabilitation. It was interesting to find that success in rehabilitation was typically described from the health professional's point of view. There were only a few studies that included patient perceptions in their study of successful outcomes (Bradley, Bogardus, Tinetti, & Inouye, 1999; Lawler, Dowswell, Hearn, Forster, & Young, 1999). The review did not reveal a significant body of literature that specifically addressed success in rehabilitation incorporating patient perspectives.

Success in rehabilitation seemed to be categorized into three concepts: goal attainment, outcome measures, and treatment effectiveness. Goals and outcome measures were used most often to determine success in the entire rehabilitation process. Treatment effectiveness was used to define success of particular treatments or treatment programs used in rehabilitation.

Several studies identified goals and aspects of goals that provide the parameters for success in rehabilitation (e.g., Albrecht & Higgins, 1977; Elliott, Uswatte, Lewis, and Palmatier, 2000; Lawler et al., 1999; Ponte-Allen & Giles, 1999; Rockwood, 1994). In some cases the health professional created the goals. In other studies, the patients participated in creating or setting the goals. The achievement task contained in the goal was of more importance to some of the researchers. They supported the idea that if the content of the goal were very specific, success would be easier to determine (Bradley et al., 1999; Ponte-Allen & Giles, 1999). It is important to note here that even in the aforementioned studies where patients collaborated with the health professional on setting goals, the health professional was really guiding the process, using feedback from the patient to construct measurable goals. All of the studies reviewed demonstrated the

influence that health professionals have on goal setting, however client-oriented the process may have been. Rather, the studies seemed to portray an idea that if patients were involved in goal setting that the patients then "owned" the goals. This observation from the literature review may well carry forward into the conclusions of the current study where it is assumed that the health professionals will similarly play an influential role in goal formulation.

It was quickly discovered through the literature review that outcome measures were used extensively in rehabilitation settings to determine a patient's overall success. The outcome measure cited frequently was the Functional Independence Measure. This measure classifies the amount of assistance a patient may require to do several daily activities (Linacre, Heinemann, Wright, Granger, & Hamilton, 1994). This is a numerical classification system where the higher the number, the more independent or successful the patient. The Barthel Index, a similar type of outcome measure, was also cited often in the literature. It was used in a similar way as the Functional Independence Measure (van der Putten, Hobart, Freeman, & Thompson, 1999). Health professionals classified patients with these scales. There was no patient input. Interestingly, these outcome measures were often used in conjunction with goals to define success. A less cited outcome measure was Goal Attainment Scaling. This was shown to be a way to quantify the attainment of goals more objectively in order to determine success (Kiresuk, Smith, & Cardillo, 1994; Rockwood, 1994).

The review did not produce many studies that related treatment effectiveness to overall rehabilitation success. In the few studies that were located, success was determined for specific treatment programs when certain results with these programs

were obtained (Malec & Degiorgio, 2002; Trombly, Radomski, & Davis, 1998). Experimental designs were employed with variables manipulated to observe treatment effects. These studies did not adequately address how success is defined in rehabilitation.

Several studies were located that addressed the factors that affect success in rehabilitation (Bradley et al., 1999; Clark & Smith, 1999**;** DeVivo, 1999; King, 1981; Roessler, 1980). In an indirect way, the definition of success was provided. Even in these studies, the actual determinant of success was the score on the outcome measure. Factors identified that influenced successful outcomes included age, severity of the disability, patient/therapist interactions, social support, length of stay, discharge placement, and patient expectations. These studies did not address factors related to how the disability occurred (e.g., unavoidable traumatic event, chronic disease process) which may affect the level of control patients may feel related to their engagement and participation in a rehabilitation program.

Within these three categories of definitions of success (i.e., goal attainment, outcome measure score, treatment effectiveness), success was viewed as either improving in physical abilities or improving psychologically in terms of accepting the disability. However, most determinations of success were based on improvement in physical abilities. Physical abilities are much easier to assess objectively; whereas, psychological and cognitive processes are not as easily assessed. The outcome measures used most often were shown to be much better at rating physical skills than cognitive skills (Dodds, Martin, Stolov, & Deyo, 1993; Linacre et al., 1994).

Research on success in rehabilitation lacks studies that examine a) the patient's perspective of success, b) the cognitive processes involved in rehabilitation, and c) the motivational patterns patients' display during the rehabilitation process.

Perspectives on Goals

After the review of literature that could provide the ways success is defined for rehabilitation, it seemed clear that in order to examine the motivational and cognitive aspects involved in achievement in rehabilitation, a study that particularly examined goals was in order. Goals were cited in all of the studies on success. Of the three categories of definitions of success, the best opportunity to examine patient perspectives seemed to be through the patients' participation in goal setting and goal achievement.

A thorough understanding of the goal construct was needed in order to examine how the construct is used in rehabilitation. Literature from educational research was sampled to help outline the dimensions of the goal construct. From this review, it seems that the goal construct has many dimensions or levels from which to examine. First, one can focus on the content of the goal. Bandura (1997) and others (Manderlink & Harackiewicz, 1984) focused on the creation of proximal goals that would contain an achievement task that was more achievable in order to improve an individual's self-efficacy. This would motivate the individual to continue toward more distal goals that were more general. Specific, target goals (Pintrich, 2000) seemed to be more useful for short term, immediate achievement tasks.

A second level from which to examine goals is by the kinds of goals individuals manifest. For example, does a particular person tend to have goals that involve learning about ideas? Or does this person tend to have goals that involve knowing more than

another person or doing better than another person? Researchers in education examined these different kinds of goals first (e.g., Jagacinski & Nicholls, 1984; Elliott & Dweck, 1988). These lines of research lead to a study of patterns of goals. In addition to the thoughts associated with the patterns of achievement goals, the associated behavior and responses were studied (e.g., Dweck & Leggett, 1988; Nicholls, 1989).

The patterns associated with ways of approaching achievement tasks and evaluating performance were termed goal orientations. Goal orientation was used to describe the pattern of responses, beliefs, and behaviors a person might have when presented with an achievement task (Pintrich, 2000). Two types of goal orientations were identified at first. They were mastery orientation and performance orientation. Mastery oriented individuals believe that if they worked hard enough to learn something that they wanted to learn, they could do it. Attempts that ended in failure were not seen as reflections of poor ability. These individuals would keep trying. On the other hand, persons with performance goal orientations focused more on demonstrating ability at the task and would either choose an easy task to do or avoid doing a task they perceived as too difficult. They viewed unsuccessful attempts as reflections of their ability and would subsequently give up trying to learn the new material (Dweck & Leggett, 1988; Nicholls, 1989).

Later, work avoidance orientation was added and the performance orientation was partitioned into performance-approach and performance-avoidance orientations (Elliot & Harackiewicz, 1996, Nicholls, 1989). These were attempts to explain achievement related behavior and goal patterns of students who did not clearly fall into the mastery or performance goal oriented groups. Doing as little as possible without severe negative

consequences motivated students with a work avoidance orientation. Engaging in tasks that would show good ability motivated the performance-approach individuals. Engaging in tasks that didn't show poor ability motivated the performance-avoidance individuals. In all of these cases, the particular orientation pattern employed by students implied something about how they conceived of their ability for particular tasks.

Carol Ames and her colleagues (Ames & Archer, 1988) also studied goal orientations in the classroom environment. Students' goal orientation patterns could be influenced by the orientation emphasized in the classroom setting. In addition, goal orientations were found to be fairly context specific. This research emphasizes the point that goal orientations need to be studied in the particular achievement context of concern. However, research in one domain or achievement context has the potential to influence research in other domains. Duda and her colleagues bridged the gap between educational research and research in sport psychology (Duda, 1989; Duda & Nicholls, 1992; Seifriz, Duda, & Chi, 1992) by examining literature from education to study goal orientations in sport.

Similar kinds of studies and findings were found in sports as were found in educational research. The same kinds of measures were used to evaluate goal orientation patterns among similar aged participants with similar kinds of goal orientation patterns found in sport. Some differences found between the sport and academic contexts have some relevance for the present study. First, achievement is more accurately observed and quantified in sport settings than in academic settings. Similarly, new skills can be easily observed in rehabilitation. Second, gender differences were reported in one study for sport (Duda, 1989). Third, studies were conducted with disabled athletes, examining their

goal orientations (Skordilis, Koutsouki, Asonitou, Evans, Jensen, & Wall, 2001; Skordilis, Sherrill, Yilla, Koutsouki, & Stavrou, 2002). Differences were found in goal orientations between wheelchair basketball players and wheelchair marathoners. Fourth, the cooperation orientation, although not a fully formed goal orientation in educational research, was found to be a salient aspect of sport behavior that merits investigation for the present study. The cooperation orientation was introduced by Nicholls (1989) in education research and studied with other goal orientations. Later studies in education do not present the cooperation orientation as a formal goal orientation, rather, a work orientation. Researchers in sport may have included this orientation in their research since important aspects of achievement in sport can be related to individuals' motivations toward working with others as a team. The findings from sport psychology may give a glimpse of what might occur with a sample of rehabilitation patients in this study.

Group differences found in goal orientations from the research in education and sport present the possibility of group differences in rehabilitation. Gender differences were found in a few studies from education (e.g., Jagacinski & Nicholls, 1984). As mentioned, gender differences and differences between different kinds of wheelchair athletes were found in sport (Duda 1989; Skordilis et al., 2001).

In light of the literature from educational research and research in sport psychology, the goal orientation research in health care was examined. Very few studies were located that addressed goal orientation. In fact, only two studies were found that were somewhat related. They did not use the term "goal orientation" but did explore the kinds of orientation patterns that related to the cognitions of patients with mental illnesses displayed in mental health rehabilitation (Dykman, 1998; Wing, 1991). The patterns they

uncovered in their research were very similar to the kinds uncovered in education and sport.

There are some similarities between the contexts of education, sport, and rehabilitation. All three contexts view achievement as gaining new knowledge or physical skills. Despite these similarities, there may be other aspects of achievement that are particular to rehabilitation. For example, since patients are dealing with health issues that may or may not be in their control, some aspect of achievement may be different within rehabilitation that would not be evidenced for education or sports. Further, the concept of effort may not be the same as what is described in education and sport in evaluating achievement behavior. Depending on the disability, the effort expended in a rehabilitation program may not be relevant. For example, someone with a spinal cord injury that results in partial or complete loss of function of particular muscle groups and who tries very hard to perform a particular skill (e.g., walking) may not ever achieve their personal goal due to limitations in the capacity of the muscle function. The concept of effort may need to be examined in relation to how it relates to realistic achievement goals. Thus, it is important to keep in mind that applying the same goal orientation construct to the rehabilitation setting may not prove to be parallel as was found when applying the construct from education to sport contexts. There may be other phenomena that effect achievement behavior in rehabilitation.

After gathering the wealth of knowledge on goal structures from education and sport research, it is clear that a similar body of knowledge about goals has not been generated in health care. It seems odd that for a domain that relies on goals so heavily in determining successful outcomes, that a comprehensive study of goals has not been

undertaken. Examining the goal structures in rehabilitation is one way of studying the person characteristics involved in providing health care services. There is not a clear understanding of how goals relate to behavior, beliefs, and perceptions of ability from the patient's perspective.

Statement of the Problem

A review of empirical studies in health care reveals that success in rehabilitation is determined by professionals rating patients' levels of performance on an outcome measure and evaluating attainment of specified goals. Patients are inconsistently involved in creating their own goals. The assumption cannot be made that patients define success in the same ways that health professionals define success. The ways in which patients receiving physical rehabilitation define success needs further exploration.

Since goals are used extensively in rehabilitation as markers for documenting progress, information about goal constructs should be outlined fairly well. However, the review of literature on goals in health care reveals that goals have only been studied from the content level. Health care has given very little attention to studying the kinds of goals and patterns of goal orientations found in various health care settings. If goals are to be used to such an extent in rehabilitation, health professionals need to have a better understanding how goals relate to motivation.

An instrument that specifically assesses goal orientations in health care does not exist. The development of such an instrument would help in moving this line of research forward. By using past research on goal orientations and goal orientation scales to create instruments and inform health care, we might find that similar patterns exist.

Purpose

The purpose of the study is to further understand patients' definition of success and the goal structures involved in rehabilitation. Patients may define success differently than health professionals. This study will move the exploration of goals from a focus on content to orientations. This type of research has not been conducted in rehabilitation to date. An instrument developed to assess goal orientations for persons receiving rehabilitation will be developed incorporating goal orientation scales used in past research. An additional purpose of the study is to validate the use of this instrument with a sample of rehabilitation patients. Goal orientation patterns identified through the use of this instrument will be related to actual success as determined by therapists' evaluations of success for each of the patient participants.

Research Questions

A quantitative approach was employed primarily to assess goal orientation patterns of the patients, the patients' level of success from the therapist point of view, and the relationship between goal orientations and success, as well as various patient characteristics to goal orientation patterns. A small qualitative component was employed to gather additional information from the patients about how they view success in rehabilitation. Through these methods, the following research questions were addressed:

- What goal orientation patterns exist in physical rehabilitation?
- What is the relation between goal orientation patterns and success in rehabilitation?
- How is success defined in physical rehabilitation? Specifically, how do patients define success?
- What factors are involved in rehabilitation success?

- How is the definition of success different for people receiving rehabilitation services than for those providing the services?

In addition to answering these research questions, several hypotheses will be tested. First, it is hypothesized that similar patterns of goal orientations will be found among this sample of patients as has been found in education and sport domains. Rehabilitation involves very similar aspects to education and sport. Individuals from all three of these areas may have similar ways of thinking about achievement. Second, it is hypothesized that the mastery goal orientation and the cooperation work orientation will be significant for this sample. Since patients are working on personal goals which directly affect their health and well being, it seems that these individuals would be more intrinsically motivated to achieve higher levels of ability. Some of the aspects of measuring physical achievement in rehabilitation are the same in sport contexts (e.g., how much weight one lifts, how long one can endure in an event). The ways that athletes use a cooperative method to go about training and participating in sport activities, is similar to how patients work on improving their physical skills in a group format. I hypothesize that the idea of cooperation will be a meaningful aspect influencing motivation for patients receiving physical rehabilitation. The cooperation orientation is included in the instrument as a goal orientation; however, in the analysis of the data, an attempt will be made to distinguish the idea of cooperation as more of a work or goal orientation.

Third, it is hypothesized that specific goal orientations that were found in education and sport domains to lead to higher achievement will also be found to lead to more successful outcomes with this sample. For example, students who were more

mastery or performance-approach orientated, demonstrated higher levels of achievement when compared with those students with other kinds of goal orientations (Duda & Nicholls, 1989; Elliott, 1999; Graham & Golan, 1991; Meece, Blumenfeld, & Hoyle, 1988; Pintrich, 2000).

Definitions

Achievement: The attainment of a personally or socially valued goal in a particular context or domain (Ford & Nichols, 1991).

Activities of Daily Living: self care activities that people typically perform everyday. These include feeding, bathing, dressing, grooming, toileting.

Goals: Thoughts about desired states or outcomes that one would like to achieve (Ford & Nichols, 1991).

Goal orientation: "a set of behavioral intentions that determine how students approach and engage in learning activities" (Murphy & Alexander, 2000, p. 28). Goal orientations include beliefs about success, ability, effort, purposes, standards, competence, and errors (Pintrich, 2000).

Goal Setting: the process by which goals are created.

Instrumental Activities of Daily Living: home management activities such as house cleaning, paying the bills, cooking, laundry. It also includes community activities such as taking public transportation, driving, shopping, going to the movies.

Outcome measure: a set of pre-established criteria from which patient progress or improvement is judged.

Therapist: allied health professionals such as occupational, physical, and therapeutic recreation therapists. This does not include psychologists or psychiatrists.

Treatment Effectiveness: the extent to which a particular treatment results in improved function.

Contribution to Research in Rehabilitation Medicine

This study will contribute to the body of knowledge concerning the rehabilitation of individuals who have acquired physical disabilities. Rather than just focusing on what is to be learned or just the psychological impact of adjusting to life with a disability, this study looked at both cognitive and psychological factors that relate to learning in the rehabilitation process. This focus on learning involved gaining an understanding of the kinds of things individuals are interested in learning as well as how they sustain their motivation and use specific strategies to help learn the task or information at hand. This study specifically addressed the motivational construct of goal orientations and attempted to provide a description of the kinds of goal orientation patterns present in rehabilitation. As mentioned, this study can be viewed as providing only a glimpse at the motivational factors that influence successful rehabilitation outcomes. The present study is a small contribution to the research in rehabilitation medicine. Further study in this area will provide a body of knowledge related to achievement behavior that is as comprehensive as the domains of education and sport.

CHAPTER II

REVIEW OF RELEVANT LITERATURE

The purpose of this review is to provide a framework for viewing success and its measurement in rehabilitation, and, specifically, to examine how goal orientations influence successful rehabilitation outcomes. Literature that addresses the determination and use of goal orientations in rehabilitation settings is of particular interest to the current study. The literature review that follows is organized into two main sections intended to address the following research questions:

- What goal orientation patterns exist in physical rehabilitation?
- What is the relation between goal orientation patterns and success in rehabilitation?
- How is success defined in physical rehabilitation? Specifically, how do patients define success?
- What factors are involved in rehabilitation success?
- How is the definition of success different for people receiving rehabilitation services than for those providing the services?

The first section details research that provides definitions of success, descriptions of factors related to success, and descriptions of how success has been measured in rehabilitation settings. The second section includes literature that presents various goal perspectives and goal constructs (i.e., goals and goal orientations) that are pertinent to the proposed study. In reviewing the literature for both sections, emphasis has been placed on locating and summarizing empirical studies. Theoretical works have been included as appropriate to provide a foundation for the examination of the empirical studies, as well as to provide a structure for the analysis of data for the proposed study. Each section will

conclude with a discussion of the gaps that exist in the research and an outline of issues to be addressed with the current study. Lastly, the review will conclude with descriptions of research needed in rehabilitation success and the goal orientations of persons with physical disabilities receiving rehabilitation.

Success in rehabilitation can be defined and measured in several ways. The first section, therefore, begins with a review of research that defines success in rehabilitation from various perspectives. Since rehabilitation is a subset of the health care domain, the literature search encompassed overall rehabilitation success rather than success in specific medical treatments or interventions. This particular part of the review is intended to be exhaustive and provide detailed information about constructs used to define success in rehabilitation. In this initial section, I also examine how success has been measured in rehabilitation settings. An exhaustive review of the literature that describes the definition of success in rehabilitation and how it is measured is important in order to understand the evaluation of success in rehabilitation relevant to the current study.

The second section provides a review of literature from the domains of education and sport research on goal perspectives, including goals and goal orientations. When discussing success in rehabilitation, health professionals working in these settings (e.g., nurses, doctors, and therapists) often identify goal achievement as an objective measure of success. Since these health care professionals seem to be very focused on goals as a barometer of success in rehabilitation, it is necessary to include a review of the pertinent literature that examines goal structures and the roles they play in successful achievement outcomes. A survey of the various goal perspectives is provided. As a part of the review in this section, two perspectives are examined more closely: achievement goals and goal

orientations. Selected research studies that show how these aspects are related are highlighted. An exhaustive review of studies dealing with goals and goal orientations specific to rehabilitation is undertaken. The intention is to illustrate the important link between definitions of success, goals, and goal orientations in rehabilitation settings.

The review of the literature on goal orientations focuses on how goal orientations are uncovered (i.e., what measures help individuals describe their particular goal orientation) and the relationship between goal orientations and actual success outcomes. In this second section, it is particularly important to sample the most relevant literature from the general educational literature, because it is there that most of the goal orientation research has been completed. Goal orientation patterns have been studied with diverse populations utilizing varying methods and rich descriptions of the orientation patterns have been provided. The current study involves methods that have been outlined in the general education research using similar data gathering tools.

In addition, the most relevant literature from sport behavior research is sampled as that field has also studied goal orientations for activities similar to physical rehabilitation. The study of goal orientations in sport contexts stems from general education research on goal orientations and is useful for studying goal orientations in rehabilitation because achievement tasks in sport involve improving physical skills. Methods and measurement tools from educational research were adapted for sport. The current study for rehabilitation will follow a similar format used in sport behavior to study goal orientations in that domain.

Success in Rehabilitation

In order to survey the definitions of rehabilitation success for individuals with physical disabilities and how success has been measured, selected databases were searched for pertinent literature. Those databases include EBSCO, MEDLINE-Pub Med, and CINHAL. Empirical studies that examined overall rehabilitation outcomes were targeted rather than studies that examined the effects of specific treatments applied to selected rehabilitation populations. For the current study, it is important to understand how individuals broadly define and evaluate success or progress in the entire rehabilitation process.

Before beginning the review of the studies that examine rehabilitation success, a broad description of the process of physical rehabilitation is warranted. The physical rehabilitation process begins with a person sustaining a physical disability of the magnitude that does not allow for recovery at home due to the extent of the disability. Frequent disabilities seen in rehabilitation settings include: spinal cord injury, stroke, amputation, brain injury, joint replacement, crippling arthritis, and multiple sclerosis. Persons receiving rehabilitation services for these disabilities have been deemed relatively medically stable. This means that there is no immediate, life threatening medical issues evident. However, disabled individuals have medical conditions that make them unable to participate in daily activities as they did prior to the injury or illness. “Effective rehabilitation of the physically disabled involves helping the client to regain physical and social functions lost through injury or disease” (Albrecht & Higgins, 1977, pp. 36-37). The rehabilitation program is designed to improve the functional abilities of individuals to a level where they can return to a satisfying lifestyle (DeVivo, 1999).

Individuals receiving rehabilitation (i.e., patients) participate in a variety of therapeutic services: occupational therapy, physical therapy, speech therapy, recreation therapy, vocational counseling, social work services, and psychiatric counseling. The rehabilitation professionals providing the therapeutic services work together as a team to coordinate efforts to move individuals from a less functional state to a state of more functional ability. The length of stay for a person in rehabilitation averages one month. Health professionals get to know their patients very well because they are assigned specific patients for the patients' entire length of stay. Patients get to know other patients very well too, especially if they begin rehabilitation at the same time. The rehabilitation program typically consists of individual and group sessions geared toward improving specific skills. Many factors help the team and patient make the decision to discontinue rehabilitation in the full-time, residential format (i.e., in-patient rehabilitation). Rehabilitation can continue on a part-time basis (i.e., out-patient rehabilitation) once the patient has been discharged from the rehabilitation center. For this study, success during in-patient rehabilitation is of interest.

In addition to the clients receiving rehabilitation, third party payers (i.e., health insurance companies) need to know how success is determined. It stands to reason that once success has been achieved, the patient is discharged or services are discontinued. One can see in the literature review which follows that there are varied perspectives on success and different ways to measure success in rehabilitation. For example, how does the team of health professionals decide when to close a case? When does the patient feel like he or she has made as much progress as possible?

Definitions of Success in Rehabilitation

In health care, terms used to discuss success fall into three main concepts: *goal attainment,* achieving individual goals that are set at the start of rehabilitation; *outcome measures,* achieving levels of performance from pre-established criteria designed for a population; and *treatment effectiveness,* improvement after specific treatments were administered. Goal attainment is the most widely used concept in this literature.

Among these concepts, one finds that success can be viewed from various perspectives. For example, an early study by Albrecht and Higgins (1977) examined rehabilitation success by looking at the entire rehabilitation process. In addition, they outlined the perspectives from which rehabilitation success can be viewed: patient versus professional judgment and physical versus psychosocial change. Consequently, goal attainment can be viewed from the professional's perspective or from the patient's perspective. The definition of success can be very different from each of those perspectives. Likewise, Albrecht and Higgins found that success could be defined by changes in physical ability and changes in psychosocial adjustment. In other words, if one views success as a change in physical ability, this would mean that being able to do more physically (e.g., walking a farther distance) indicates successful rehabilitation. On the other hand, if one views success as improvement in psychosocial adjustment, then the changes in how people cope with their disabilities (e.g., improved skills at seeking assistance from others) indicates successful rehabilitation.

Lawler, Dowswell, Hearn, Forster, and Young (1999) also looked at how people make progress or reach success during rehabilitation. These researchers discussed similar aspects of rehabilitation success as Albrecht and Higgins (1977) but added another

perspective in which to view success. Lawler et al. completed a qualitative study that revealed three general areas of progress: physical progress, psychological progress, and circumstantial improvement. Physical and psychological progress was viewed in the same way presented by Albrecht and Higgins. Circumstantial improvement captured areas of improved abilities that did not clearly fall into the areas of physical or psychological progress. An example of circumstantial improvement is when a patient has modifications made to the home environment for better access.

The structure with which to view success in rehabilitation provided by the aforementioned studies is used for organizing the literature review that follows. These perspectives (i.e., success in physical abilities, success in psychological or psychosocial abilities, professional's perception of success, and patient's perception of success) will be referred to throughout the review within the three overall concepts used to discuss success in rehabilitation (i.e., goal attainment, outcome measures, and treatment effectiveness). The studies that were located for this review provide further descriptions of success from these perspectives and describe methods of evaluating success in rehabilitation. An exhaustive review of the literature that defines success in rehabilitation can be done because there are very few studies that attempt to capture the entire rehabilitation process examining success from all perspectives.

Goal Attainment

Goal attainment refers to achievement of specified goals. This term was used most often in the literature. However, goal achievement was also used with the same meaning. For the purposes of this review, goal attainment will be used except where this

term might be confused with a particular methodology of measuring goal attainment (i.e., Goal Attainment Scaling). In these cases, the term, goal achievement, will be used.

A review of literature on defining success in rehabilitation shows that goal attainment is primarily used as the barometer of success. Many of the studies referred to goals and the extent to which goals were met in their description of successful outcomes (e.g., Albrecht & Higgins, 1977; Elliott, Uswatte, Lewis, & Palmatier, 2000; Lawler et al., 1999; Ponte-Allan & Giles, 1999; Rockwood, 1994). Since achievement goals will be discussed in the second section, this part of the literature review will focus on how goals aid the determination of success or progress. Goals can define success by the way they are written. The first step in using goals to define standards of success is to set appropriate goals initially. In discussing goals as indicators of success, the majority of studies also discussed the process by which goals are set (Bradley, Bogardus, Tinetti, & Inouye, 1999; King, 1981 Lawler et al., 1999; Ponte-Allan & Giles, 1999; Rockwood, 1994). Goal setting will be discussed briefly in this first section. Further discussion will continue in the second section on goals and goal orientations.

In setting goals, King (1981) implied that the creation of goals should be a mutual process between the patient and the health professional to identify valuable and important skills, aspirations, and feelings that can result in measurable outcomes. Although, the health care team often sets goals without the input from the client. In a theoretical piece by Janet Haas (1993), the point is made that patients may not be in a position during the initial part of their rehabilitation to participate in goal setting due to the overwhelming changes in their lives. As a result, other health professionals create goals for the patients. In the study by Lawler et al. (1999) that examined the goal setting process between nurse

specialist and patients receiving rehabilitation, the nurse specialists reported that they were occasionally directive and set goals for the patient when patient goals were unrealistic. As these studies illustrate, there is a history of collaborating with patients on goal setting in the health professions. However, the actual identification of goals falls within the purview of the health professional. The study by Lawler et al. (1999) stated that patients' personal goals were ignored if the goals are deemed unrealistic. Regardless of the extent to which the patient is involved in goal setting, goals are written in an objective and measurable manner to facilitate the process of evaluating whether goals have been met. Success in rehabilitation is equated with meeting rehabilitation goals. Few studies examined the definition of success in rehabilitation in ways other than by attaining goals.

The kinds of goals that can best help determine success are those that are written very specifically. The content of the goals is very clear. Ponte-Allan and Giles (1999) examined the types of goals set by individuals who received rehabilitation following a stroke. In this study, the patient was able to participate in goal setting. However, health professionals made the determination of goal attainment. This was a retrospective study, comparing identified goals with a standard outcome measure commonly used in rehabilitation to measure functional independence (i.e., Functional Independence Measure [FIM]). The researchers found that individuals who set specific goals (e.g., "I want to put my clothes on independently.") versus non-specific goals (e.g., "I want to do more than I am capable of now.") had higher outcome scores on the FIM and were, therefore, considered more successful. The sample used in this study was small (46 participants). Therefore, results cannot generalize to the broader population of persons

receiving rehabilitation. However, the premise was that if patients could identify specific goals, they were more likely to attain them than if the goals had been more general. This premise ties to the notion of setting goals that are measurable.

Bradley et al. (1999) support the notion that appropriately articulated goals are essential to achieving positive clinical outcomes. They, too, make the distinction between setting specific goals and more general goals. Specific goals define success parameters better than general goals. In their qualitative study with 36 patients who were diagnosed with dementia, Bradley et al. discovered that there was a process the client went through to move from creating general goals to more specific goals. They also looked at the clients' associated factors, such as values and sense of self. In that these associated factors are directly related to why persons choose to work towards achievement in a particular manner, they will be discussed further in the section on goals and goal orientations.

Elliott et al. (2000) also examined types of goals set by individuals receiving physical rehabilitation. This study related goal attainment with improvement in psychosocial function, which relates to improved or adaptive thoughts and behaviors. Elliott and colleagues studied patients with spinal cord injury and classified their goals by means of the Goal Instability Scale (Robbins & Patton, 1985). On this scale, persons found to be high in goal instability had rehabilitation goals that were weak, not meaningful, not adaptive, highly influenced by others, and not based on any particular set of values. Persons with low goal instability had rehabilitation goals that were adaptive, meaningful, and were based on values they possessed before the injury.

In their study of 109 participants, Elliott et al. (2000) found that goal instability did not relate to gains in functional ability as measured by FIM scores. They did find that goal instability related to the degree of depression and distress participants experienced as they adjusted to living with a new disability. In this study, there was no relation between increases in functional ability and the kinds of goals set in terms of their meaningfulness to the client, or the degree to which the goals were adaptive. However, it seems that greater success in psychosocial adjustment stems from having low goal instability.

The aforementioned study is a good example of how success can be determined from diverse perspectives. Although there may not have been a correlation between types of goals and success in functional ability, in the Elliott et al. study there was a correlation between the types of goals and success in the psychosocial aspect of rehabilitation. The concept of goal instability is closely related to goal orientation.

In the aforementioned studies, the focus was on the content of the goal. The definition of success centered on the patient's achievement of established goals. Although these are objective ways of measuring success, the way these researchers chose to examine goals does not convey any information about what the patients think about the set goals. Nor does this line of research provide information about what influences and motivates patients to continue to pursue certain goals that may seem difficult to achieve. Those studies seem to suggest that all patients have rehabilitation goals. Essentially, they do. If the patient is unwilling to participate in goal setting, the health professional will set goals for the patient. The health professional also guides the goal setting process so that patient personal goals most likely reflect the opinions of the health professional more so than patient intrinsic desires and wishes (Ponte-Allan & Giles, 1999; Lawler et al., 1999).

The gap in research in terms of defining success lies in understanding how the patient really perceives success and thinks about goals. Only one study (Bradley et al., 1999) posited that internal self-processes influenced the kinds of goals set by patients who had the opportunity to participate in goal setting. Another study by Elliott et al. (2000) did not directly ask patients about their rehabilitation goals. The Goal Instability Scale they used in their study asked more general questions about goals overall (i.e., "It's easier for me to start than to finish projects," and "After a while, I lose sight of my goals."). None of the studies reviewed incorporated a specific measure of how the patient defined success. One does not have a clear sense of what motivates patients toward mastering their goals (or not) in rehabilitation.

Outcome Measures

Another way of defining rehabilitation success involves looking at outcome measures. Similar to goals, outcome measures deal with changes in performance or behavior. Unlike goals, outcome measures are not individualized for each patient. With outcome measures, a standard has been set based on prior knowledge from research with a sample of individuals. Further, success is determined based on the extent to which the patient reaches the outcome criteria. There were two primary outcome measures used to evaluate success or progress in rehabilitation: the Functional Independence Measure (FIM) and the Barthel ADL (Activities of Daily Living) Index (BI).

The FIM is a type of outcome measure that actually determines the level of care a patient will need (Linacre, Heinemann, Wright, Granger, & Hamilton, 1994). For this measure, success is defined as needing very little or no assistance in selected daily tasks. Briefly, the FIM has pre-determined levels of functioning that range from 0-7, with 7

indicating the highest level of functioning. Patients who reach Level 7 are considered to have achieved success. Unfortunately, one may not achieve a Level 7 in all the categories the FIM measures. According to the FIM, patients can achieve varying levels of success in many areas of functioning (i.e., dressing, bathing, mobility, sphincter control, communication, feeding, social cognition, and communication). The definition of success for overall rehabilitation is difficult to ascertain with differing levels of achievement. The FIM focuses mostly on success in physical abilities rather than success from a psychosocial perspective. The FIM also relies on the health professional's judgment in determining the outcome score. The patient's perspective is not considered at all in calculating FIM scores.

Another widely used outcome measure is the BI. The BI was developed in 1955 to assess functional abilities in feeding, grooming, bathing, dressing, bowel and bladder care, toilet use, ambulation, transfers, and stair climbing. There are 10 items on the scale that the clinician administers through observation of the client attempting those skills (van der Putten, Hobart, Freeman, & Thompson, 1999). A later version of the BI reduces the items to five and also includes a self-report version which the patients can complete. The maximum score on the 10-item version is 20 on the BI. Despite the availability of a self-report version of the BI, clinicians continue to use the 10-item version that is completed by the health care team (Hsueh, Lin, Jeng, & Hsieh, 2002).

In the majority of the studies that examined goal attainment, the FIM score was used primarily as the standard to compare achievement, with the BI being cited next most often (Elliott et al., 2000; Ponte-Allan & Giles, 1999). Both of these measures were created to be easy to administer and to render valid and reliable information that could be

used to compare outcomes across populations, settings, or regions. In fact, the FIM was created after the BI and was meant to be a more comprehensive and responsive measure than the BI (Hsueh et al., 2002). Individual goal achievement was often compared to the FIM or BI scores because the scores provided quantitative data that could be used for aggregate statistical analysis for a medical system.

Other outcome measures similar to the FIM have been used in other studies. For example, an Australian study conducted by Clark and Smith (1999) correlated functional outcomes using the Australian ADL Index with factors that influenced stroke rehabilitation outcomes. Implicitly, success for this measure was defined as meeting outcome criteria in activities of daily living indexed in this measure.

Outcome measures similar to the FIM illustrate health care's perception that health professionals can best determine success regardless of the amount of collaboration with patients on goal setting. Motivational factors that influence patient progress are ignored when limiting decisions of success to FIM types of scores that only evaluate certain skills and does not account for or incorporate cognitive or psychosocial factors.

The Goal Attainment Scaling (GAS) is another method of measuring outcomes. Despite the words "goal attainment", this method uses goals as outcome measures. GAS has been used in various ways to measure change in health status, at a program level as well as at an individual level. Kiresuk, Smith, and Cardillo (1994) developed this measurement procedure primarily to aid administrators in program evaluation for quality improvement (Rockwood, 1994).

In GAS at the program level, the facility determines what the outcome measure should be for the program in question. A program can be as large as an organized brain

injury program involving many disciplines, or as small as a community re-integration program involving one discipline. The "goals" are the outcome measure. Once the goals have been set, they are then weighted or ranked from least to most important.

The next step in Goal Attainment Scaling is to determine different levels of achievement for each goal, ranging from much less than expected to much more than expected levels of attainment. These levels are determined prior to the start of any program. At the end of the program, the level that has been reached is chosen and then correlated to the kinds of interventions used in the program offered. An elaborate mathematical equation is used to determine the extent to which the outcomes were met. Administrators can use this method to determine success of different interventions or the implementation of specific programs (Rockwood, 1994).

In occupational therapy, Goal Attainment Scaling has been used with individual patients and helps to make the determination of rehabilitation success (Ottenbacher & Cusick, 1990, 1993; Scott & Haggarty, 1984; Trombly, Vining, Radomski, & Davis, 1998). Therapists designed the goal scale to indicate the levels of attainment for specific goals. The patient and the therapist sometimes collaboratively determine the level of attainment at the end of rehabilitation. From the literature, it seems that most of the time, it is the therapist who determines the level of attainment. This method of measuring success in one aspect of rehabilitation, occupational therapy, was used primarily by therapists who wanted to determine the effectiveness of one treatment plan over another.

Rockwood (1994) also examined the use of GAS to measure outcomes in rehabilitation among the frail elderly. Rockwood noted that treatment for the frail elderly person involves a myriad of alternatives, but that only a selected few treatments were

typically used to determine success. He proposed GAS as a way to account for the variety of interventions and reported a summary of the interventions that help determine rehabilitation success. He stated that the FIM and BI evaluate success in areas that may not be that meaningful for the patient in question. GAS can account for those individual differences in outcome measurement. Despite Rockwood's call for more patient involvement in identifying the goals used in GAS, the health professional continues to establish the criteria that provide the ranking for the extent to which the goal was met.

For both the FIM and GAS, there is little understanding of how patients perceive their own level of achievement. It seems inherent in outcome measures that there is a qualified person making the determination of outcome attainment. There would be very few opportunities for patients to participate in determining rehabilitation success using these measures. The one exception could be if the patient were included in the GAS process. In this case, as was seen in the studies by Ottenbacher and Cusick (1993) and Rockwood (1994), the patient can help determine the outcome but not the outcome criteria.

Discharge plans are another way to measure success that was cited by DeVivo (1999). While discharge plans are more of an outcome variable than an outcome measurement tool, the place to where patients are discharged reflects the extent to which patients are able to improve their abilities to a level where independent performance is achieved. Discharge plans, together with measures of functional ability, are an important indicator of the extent to which goals are met. In this case, those with outcomes not as successful as was hoped will usually have discharge plans that include a nursing home placement or extended care in some kind of transitional care facility. A plethora of issues

influence discharge plans. Discharge plans are based on many factors, of which functional ability is one. Issues of insurance coverage and at-home supports among others will affect the discharge plans. These issues will be discussed further in the section on factors affecting success in rehabilitation.

Treatment Effectiveness

Another term that emerged during the literature search was treatment effectiveness. This term refers to a specific treatment rendered to a particular group of patients. An example of this from rehabilitation involves providing a wheelchair mobility class for spinal cord injured (SCI) patients. Wheelchair mobility (i.e., how individuals maneuver their wheelchairs in the environment) training could be provided individually or in a group. The wheelchair mobility class, perhaps structured in a particular way, is a different way of providing mobility training than if training is done on an individual basis. The effectiveness of providing wheelchair mobility training in a class format versus individually might be of interest to the therapists providing the training. One "treatment" may be more effective than another treatment. In most cases, treatment effectiveness is described in this manner in the literature. In a few cases, treatment effectiveness refers to the effectiveness of the entire rehabilitation program. From this perspective, success is defined by the effectiveness of the treatments provided.

Two studies of success in a brain injury program are examined here because they examine a program of rehabilitation (Malec & Degiorgio, 2002; Trombly, Radomski, & Davis, 1998). In the study by Trombly et al. (1998), the treatments provided were much more specific and involved only occupational therapy. This is only one of several disciplines that would be involved in a typical comprehensive rehabilitation program. In

their study, the overall occupational therapy intervention was evaluated as it related to the improvement of and progress in the patients' conditions. A small sample of 16 brain injured individuals, participating in an out-patient program, was examined.

Trombly et al. used a combination of measures to correlate patient progress and the intervention provided. The measures used were: GAS, the Canadian Occupational Performance Measure (a self-report measure in which patients identified satisfaction with performance in daily living skills and problem areas), and two other scales (Independent Living Skills Evaluation and the Reintegration to Normal Living Scale) that measured changes in instrumental activities of daily living (e.g., housekeeping and cooking). As discussed earlier, the therapist completed the GAS with the patient participating only to the extent of identifying the initial goals. The therapist created the scaling and rated the goals as being met at the end of the therapy. Findings showed significant improvement in activities of daily living and instrumental activities of daily living after receiving out-patient occupational therapy. The researchers were careful to note that the findings did not show causality; meaning that occupational therapy alone caused successful attainment of goals. There may have been factors other than occupational therapy that contributed to the improvement in functioning.

In another study of brain injury rehabilitation programs (Malec & Degiorgio, 2002), treatment effectiveness was measured by comparing the outcome variables of three programs of rehabilitation for individuals with brain injury. Participants included 114 individuals with brain injury enrolled in out-patient rehabilitation programs. The focus of all the programs was to improve the patients' ability to return to a vocation so all treatment groups included specialized vocational services. However, in one of the groups,

a three-hour per week community reintegration group was added. In the last group, six hours per day of comprehensive day treatment was added.

Pre-treatment, post-treatment, and one year follow-up data were gathered using the Vocational Independence Scale and the Mayo-Portland Adaptability Inventory (measures ability and participation in several areas such as communication, use of hands, depression, independent living, and driving, among others). The criterion for success was community-based employment at the one-year follow up. They found that the type of brain injury rehabilitation provided did not correlate with patients obtaining community-based employment (77%-85% of all participants regardless of treatment group, obtained employment). They did find that the severity of the brain injury and time since the injury were significant factors in assigning patients to different treatment groups. Consequently, persons with more severe brain injuries were enrolled in a group that provided more intense services. Success was possible for any person with brain injury if they were given the appropriate level of treatment.

The aforementioned studies were selected because they are good examples of studies that attempt to examine treatment programs that influence overall outcomes. When the focus is on treatment effectiveness, the motive is to understand more about the treatment than about the person receiving the treatment. There is no consideration of the patient variables that perhaps could be altered to improve effectiveness of particular treatments. Neither of these studies included measures completed by the patient that played a major role in the determination of success of a particular treatment. Both studies utilized several measures. Consequently, those measures in which the patient had some participation were diluted by information from the other measures that the professional

completed. It seems that in order to state a treatment is effective, one needs to obtain information from all aspects of the treatment context. This includes obtaining the reactions of those receiving the treatment.

Factors Affecting Success in Rehabilitation

Although most of the literature identifies goal attainment or attainment of some kind of outcome as the definition of success in rehabilitation, other studies examined the factors that affected goal attainment and the ability of the patient to reach desired outcomes. Many factors relating to successful outcomes in rehabilitation were cited, including severity of disability, patient/therapist interactions, social support, length of stay in the rehabilitation center, discharge placement, patient expectations, and age of patient (Bradley et al., 1999; Clark & Smith, 1999**;** DeVivo, 1999; King, 1981; Roessler, 1980).

As noted, DeVivo (1999) identified discharge placement as a measure of success. In this controlled study of 16,633 participants, the researcher found that age and marital status were the largest predictors of discharge placement among SCI patients. DeVivo used a control group of 15,913 SCI patients who were discharged to their home or home-like environment, and compared them to another group of 720 SCI patients who were discharged to a nursing home or more hospital-like environment. After regression analysis, the factors that were the highest predictors of discharge placement were age, race, employment status, health and hygiene routines that required assistance (e.g., bowel and bladder management), education, marital status, functional ability, severity of injury, and health insurance.

In another study by Clark and Smith (1999), rehabilitation outcomes after stroke were affected by various factors: age, severity, knowledge of stroke and stroke recovery, date of initiation of rehabilitation services from date of onset, and client expectations. The study consisted of 60 participants and their families who completed scales and questionnaires that evaluated levels of knowledge, depression, abnormal illness behavior, activity, and functional ability. Regression analysis was used to identify which factors better predicted functional outcomes in activities of daily living (ADL). The above factors were the only ones that were statistically significant. Based on these two studies, one can propose that these factors can influence the kinds of goals that are set, the motivation for attaining the goals, and how goals will be assessed as being met or not.

In line with factors involving self-processes, researchers examined factors that affected achievement of rehabilitation goals during the 1960s and 1970s (Fogel & Rosillo, 1969; Roessler, 1980; Roessler & Boone 1978, 1979). These were primarily rehabilitation counselors or psychologists who were interested in patients' adjustment to their disabilities. Roessler (1980) provided an overview of the early research on the factors that affect goal attainment. Through this review, he outlined factors affecting goal attainment in rehabilitation, including patient's value for the goal, patient's expectancy of success, and patient's feelings associated with attempts to attain the goals, support from significant others, and personal or environmental barriers. In this review, very few empirical studies were cited. The assumption could be made that little empirical work has been done in this area.

One study that was cited and located for this review is one conducted by Fogel and Rosillo (1969). These researchers found that disabled male patients with positive

expectations regarding their ability to achieve their goals made more progress than those patients whose expectations were not so positive. It seems that there was more of a focus on research examining psychological factors affecting rehabilitation success in past years, as compared to current research topics in rehabilitation. Cognitive factors affecting rehabilitation success were not given an in-depth examination in past or current research. The cognitive factors that relate to success have been studied more in educational research than in health care.

One exception was a study by Bradley et al. (1999). These researchers reported that in clinical medicine, additional factors that affect successful rehabilitation are centered around patient factors such as, the patient's perceived efficacy and risk-taking ability. Other factors involved the extent of the disability and the patient's interactions with therapists and family. Bradley et al. continued discussion of the self-processes involved in the way patients approach rehabilitation.

An issue related to achieving success, the time frames for achieving success in rehabilitation, was examined in only one study (Albrecht & Higgins, 1977). In rehabilitation, if goals are not met within an estimated time frame, the rehabilitation can possibly be extended until success is achieved. There are some limitations to this idea, however. Third party payers will not allow a patient to continue to receive rehabilitation services indefinitely. If a certain level of success is not achieved in a reasonable amount of time, an alternate plan is created for the care of the patient. In most cases, however, rehabilitation continues until goals are met or outcomes are reached. Most individuals receiving rehabilitation, thus, achieve success as defined by improvement in their

functional independence in performing daily living skills or improvement in their psychosocial adjustment.

A summary of the literature that provides a definition of success shows that goals are used as the primary method of measuring and defining success. Most goals focus on physical functioning, rather than psychosocial functioning. Therefore, success is seen as an improvement in physical ability. The literature highlights the fact that although attempts are made to include patients in their own goal setting, health care professionals are principally responsible for creating goals and measuring their attainment.

The literature also demonstrates a reliance on outcome measures, such as the FIM, for recording success in a manner that is easily computed. What is lacking in research in rehabilitation are studies that provide rich descriptions of success from diverse perspectives (i.e., patient versus caregiver, patient versus health professional, physical versus psychosocial improvement) and correlate motivational factors with success in rehabilitation. The definition of success in rehabilitation is multifaceted, as Albrecht and Higgins (1977) imply with their overall study of rehabilitation success. Since the study by Albrecht and Higgins, most of the literature seems to limit the definition of success to one or two basic ideas. In the studies presented thus far, definitions of success have been limited to the achievement of scores on a scale or judgments by health professionals determining goal achievement.

Rehabilitation medicine would benefit from studies that contribute to the understanding of all that is involved in rehabilitation. This could assist in the development of more efficient methods of delivery of rehabilitation services. Studies that

further the work of earlier researchers and uncover motivational and cognitive processes that influence participation in rehabilitation and success are indicated.

Success Measures

Studies that examined rehabilitation success used tools that were mostly quantitative (Dodds et al., 1993; Linacre et al., 1994; Muecke, 1992; Ponte-Allan & Giles, 1999), although some included both quantitative and qualitative components (Bradley et al., 1999; Elliott et al., 2000; Lawler et al., 1999; Robbins, 1985). Some measures are given to the client to complete, gaining the client's perspective (e.g., GAS, self-report such as Goal Instability Scale). Others rely on the health professional's perspective (e.g., GAS, FIM, Barthel Index). Some measures focus purely on gains in physical abilities (e.g., FIM, Barthel Index, GAS), although others look at psychosocial adjustment and cognitive factors (e.g., Goal Instability Scale). The next part of the literature review will provide a description of the types of instruments and methods used to measure success in rehabilitation. A sampling of the kinds of measures most often cited in the literature is provided. However, there are many variations of the same kind of instruments being used to measure success. The most often cited methods for measuring success were goal achievement and use of the FIM. These methods will be covered in detail.

Measures That Evaluate Goal Success

Goals can be measured quantitatively (e.g., GAS) or qualitatively through the professional’s or patient’s evaluation of behaviors or responses. In either case, an important part of evaluating whether a goal has been met is to take the time to write a specific and measurable goal at the outset. Several studies concluded that success is more

clearly seen when specific goals are identified (Bradley et al., 1999; Ponte-Allan & Giles, 1999; Wing, 1991). Theoretically, anyone who reads the goal should be able to understand how that goal will be met. Goals should be written as behavioral objectives.

In rehabilitation, goals are typically written in this manner: "Patient will dress his upper body with moderate assistance within 30 minutes after setup." This goal is very measurable except for the use of "moderate assistance." This phrase could mean something different depending on how the professional or patient interprets it. Most health professionals in rehabilitation participate in specific training to understand how to rate different levels of assistance. In fact, part of the training for administering the FIM includes a videotaped instructional series that explains how the levels of assistance should be determined. For instance, the instructional tapes for the FIM instruct the health professional to assign a "moderate assistance" level when the patient performs at least 50% of the task being evaluated. On the tape, demonstrations with patients performing the functional tasks are shown with differing levels of assistance. Once the health professional views the tapes, a test is given and must be passed before that professional can reliably evaluate patients with the FIM. This is important so those rehabilitation professionals are consistent in determining the same level of assistance across all kinds of patients (Linacre et al., 1994). This method of assigning levels of assistance is generally used in a non-standard manner when writing goals (Acquaviva, 1998).

A qualitative or subjective determination of success is made based on the professional's or patient's judgment of the extent to which the goal was achieved. Using achievement of goals as the only measure of success may not be as reliable or as efficient as when using other methods of measuring success. The validity of the goals to measure

success is only as good as the goals that are selected and written (Bradley et al., 1999). Poorly written goals will not accurately reflect success in rehabilitation. Likewise, poorly chosen goals will not reflect the change that might have occurred in the rehabilitation process (Bradley et al., 1999; Rockwood, 1994). For example, a goal may be written related to independent dressing. The goal might state: "Patient will be independent in upper body dressing." Although this goal is measurable, it does not give any information about the type of clothing that the patient chooses to put on. A patient could be independent in putting on a t-shirt but unable to put on a fancy button down shirt. Technically, the goal would have been met. However, the patient may still want to work on this goal for different types of clothing. Despite this limitation in using goals to define success, they continue to be used to a large extent in determining rehabilitation success.

Although not as widely used, GAS is a way to use quantitative methods for determining success in achievement of specific goals. As discussed earlier, GAS attempts to make specific goals even more specific by identifying different levels of attainment for each goal when they are initially set. GAS takes into account individual differences, but is standardized by using a mathematical calculation to determine the extent to which the goals are met (Rockwood, 1994).

The psychometric properties of the GAS have been discussed among various researchers who use this procedure in program evaluation and patient treatment (Bradley et al., 1999; Kiresuk, Sherman, & Cardillo, 1968; Ottenbacher & Cusick, 1990, 1993; Rockwood, 1994; Scott & Haggarty, 1984). For program evaluation, GAS is used by professionals to examine treatment effectiveness (Kiresuk et al., 1968). In this case, goals are established prior to the start of treatment and the goals are the same for each patient

who participates in a treatment program. Patients are randomly assigned to treatment groups and the effectiveness of a treatment can be determined based on the GAS score. For the purposes of this study, however, it is more important to understand how the GAS is used to determine rehabilitation success for individual patients.

When used with individual patients, the GAS score cannot be used to draw relationships between patients as if looking for success rates among a group of patients with the same goals. Each patient has an individual set of goals that are scaled and then scored. Although a standardized score is obtained in GAS, the score is not meant to be a standardized assessment to be used to report relationships among a sample or population. Reliability issues pertain to the professional's ability to consistently assess the level to which the goals were met using the goal scales for individual patients. Ottenbacher and Cusick (1993) state that inter-rater reliability should be established in a way that is done with single-subject designs. The *t* test statistic calculated for each goal and the level of attainment achieved displayed a symmetrical distribution with a sample size of 900 goal attainment scales (Kiresuk, 1973). This means that the GAS was able to reveal the amount of change that occurred with individual patients in a pattern that is similar for 900 other goal scales.

Ottenbacher and Cusick (1990, 1993) also noted that the *t* test statistic reflects a change in performance and is only as good as the prediction of the possible levels of attainment before the start of treatment. If the professional is not very accurate in determining the possible levels of attainment, then the scaling procedure will not accurately reflect success. For example, if we go back to the dressing goal discussed earlier, the therapist could predict that a better than expected outcome was that the patient

would be able to button small buttons on a blouse. A less than expected outcome might have the patient putting on a shirt with minimal assistance from others. However, at the end of treatment, the patient was able to manage large buttons and not small buttons, but the expected level of independently dressing the upper body with a pullover t-shirt was met. How is the goal evaluated? The outcome falls between two levels. The health professional would need to assign some level of attainment with the levels that were established at the beginning of rehabilitation. The GAS is affected by the accuracy of the prediction for the levels of attainment. The GAS can be a useful way to determine success on an individual basis despite its drawbacks.

Measures That Evaluate Outcomes

Most rehabilitation centers combine the use of goals with a standard outcome measure. As noted, the FIM score is the most commonly used outcome measure. Others that have been used are the BI, the Katz Activities of Living Scale, and the Australian ADL Index. Each measures similar areas of functional ability (e.g., self care, locomotion, mobility, sphincter control, communication, social, and expression/cognition) in similar ways. Patients are assigned numerical values associated with the level of performance the patient has reached. The levels are pre-determined and applied to all rehabilitation patients regardless of disability. Success is determined by the patient reaching a certain overall score.

Although goals may be used on a day-to-day or week-by-week basis, the FIM is used at critical points in the rehabilitation process (i.e., beginning, middle, and end). The FIM is an efficient way to determine how much progress has been made during the patient's rehabilitation. The FIM has been shown to have good internal consistency and

construct validity (Dodds, Martin, Stolov, & Deyo, 1993; Linacre et al., 1994). Inter-rater reliability for the FIM was not tested in the study by Dodds et al. (1993). Despite specific training to administer the FIM properly, a consistent rating between clinicians is not always possible. Because of this, the same clinician who completes the admission FIM score also completes subsequent FIM scores.

Both the Dodds et al. (1993) and the Linacre et al. (1994) studies examined the effectiveness of the FIM to determine functional gains that would indicate success. These researchers also discussed the fact that the FIM was a better measurement of physical performance rather than cognitive performance. Linacre et al. proposed that a two-scale version of the FIM be created so that the physical skills can be separate from the cognitive skills. Absent from the FIM score is any measure that relates to psychosocial adjustment to the disability. As other researchers have pointed out, success can be measured by looking at either physical or psychosocial progress (Albrecht & Higgins, 1977; Lawler et al., 1999). The FIM, as with many other outcome measures, does not adequately evaluate changes in psychosocial functioning nor do they utilize patient input for the scoring process.

Summary for Success in Rehabilitation

In summary, the literature on the definition and measurement of success in rehabilitation provides the reader with several characteristics of the kinds of research that has been conducted in rehabilitation medicine. First, many of these studies used small sample sizes to obtain data. There were only a few studies (DeVivo, 1999; Dodds et al, 1993; Linacre et al, 1994) that had substantial sample sizes from which findings could be generalized to a population. The sample in those studies included patient records, rather

than actual patient report. Collecting retrospective information from medical records facilitates a larger sample size. Many of the studies cited included fewer than 100 participants. There is a need for more studies that replicate past studies but use larger sample sizes so that information that can be generalized to a larger population and perhaps used for designing better treatment programs in rehabilitation.

Another characteristic of the research in rehabilitation medicine is that most studies were primarily quantitative or had quantitative components in their methods and focused on success from the viewpoint of improved physical functioning. However, there were a good proportion of qualitative studies within the literature focused on physical functioning (Bradley et al., 1999; Elliott et al., 2000; Lawler et al., 1999; Robbins & Patton, 1985). Even for these studies, the qualitative data were compared to some kind of quantitative measure (i.e., FIM or Barthel Index). For the health care system, it seems that quantitative data which describe phenomena that are easily observed is the most practical. Yet, this kind of data does not provide a complete picture of the process of rehabilitation. Rehabilitation medicine could benefit from future studies that obtained more direct patient report either in a quantitative or qualitative manner.

Lastly, all of the studies viewed improved physical functioning as the marker for success in rehabilitation. Improved psychosocial adjustment was not a central focus of many of the studies. Although some studies did discuss psychological factors involved in the rehabilitation process (e.g., Bradley et al., 1999; Roessler, 1980), there was only one study that examined psychological, cognitive, and self-processes deeply, as they relate to success in physical rehabilitation (Fogel & Rosillo, 1969). Measures that assess

psychological processes in the rehabilitation process would be beneficial in enriching the description of the processes that affect success in rehabilitation.

Biddle, Soos, and Chatzisarantis (1999) proposed that rather than defining success in terms of competency, obtaining an understanding of how individuals regulate their behavior with differing reasons for acting in certain ways can help in the development of programs that improve physical activity among children. This idea can also be applied to physical rehabilitation. It appears that the competencies have been identified for success in rehabilitation, but the motivational factors that relate to successful behavior have not been studied as well in rehabilitation medicine. It remains unclear how patients define success in their own minds and what motivates them to pursue certain goals in the manner that they do.

Perspectives on Goals

Goals and how they are used to modify behavior have been studied in a variety of contexts, from education to sport settings. Within the body of research on goals in these areas, various perspectives of goals and how goals are conceptualized in achievement settings have been emphasized. This section of the literature review will outline the research on goals in education and sport. A sampling of theoretical and empirical works from these domains will be highlighted to illustrate the different perspectives in goal research. Particular attention will be given to literature that addresses goal orientation. In addition, a review of literature that address the construction and use of goal orientation scales will be provided. Finally, relevant studies on goal orientations from health care will be presented along with future research implications for rehabilitation.

A brief historical review of educational research reveals that social cognitive researchers have not presented an overall goal theory. Rather, theories that relate various aspects of goals, achievement, and behavior have been developed and presented (e.g., achievement goals, goal orientations, or self-efficacy). Within educational research, goals are addressed within the context of established theories and models. This is not true for the business sector. Business managers and supervisors used Path-Goal Theory (Welsenfeld & Killough, 1992) to assist them in helping their employees achieve certain job expectations. In rehabilitation medicine, it seems that research on goals follows in the similar pattern to that in educational research, developing theories that describe the relation between aspects of goals, achievement, and behavior. No formal goal theory was located in the rehabilitation literature.

Goals, especially goals in achievement settings, received much attention in the late 1970s to the present by researchers in the field of psychology, especially among social-cognitive theorists. Bandura (1986) studied goals early and illustrated how goals influence self-efficacy. Ford and Nichols (1987) created a taxonomy of the various kinds of goals individuals pursue. Dweck (1986) and then Nicholls (1988) introduced the concept of goal orientations or patterns of motivation for achievement related goals. Later, Wentzel (1991) demonstrated the influence of social goals on achievement. Pintrich (2000) expanded goal orientation research by providing a multiple goal orientation perspective. All of these researchers presented their perspectives on the relationship between goals and human behavior in achievement situations.

The literature from educational research on goals in general can be divided into two or three broad categories with specific terminology applied for constructs used in the

study of achievement goals. Urdan and Maehr (1995) proposed two categories, making the distinction between goals that pertain to "why" individuals are trying to achieve in a situation and goals that pertain to "what" they are trying to achieve. Research that has focused on what is to be achieved has been termed goal content research because the specific content of the goal is most important. Research that has focused on why individuals work toward achievement has been termed goal orientation or goal involvement research because understanding the processes involved in selecting a goal and working toward that goal are important. This distinction helps to organize current research reviewed. While both distinctions are important, for the purposes of this study, "why" individuals try to achieve is a more important issue to understand.

Pintrich (2000), however, further distinguished the two broad categories of goals by breaking them down into three levels. The first level includes target goals that are very specific. These are very similar to the types of goals most used in health care. These goals focus on what is to be achieved. The second level of goals, related to achievement, combines what is to be achieved with some evidence of why the individual wants to achieve that particular goal. An example of this kind of goal is: “I want to get an A in this class so that I can improve my GPA.” The third level contains goals that are more general and focus on why a person wants to achieve a goal without specific wording to evaluate the attainment of the goal. An example of a general goal would be “I want to have a lucrative career.” General goals provide useful information about what over-arching goals guide the creation of the more specific target goals.

As mentioned, that aspect of goal research that examines why an individual works to achieve in a particular task is referred to as goal involvement or goal orientation

research. Pintrich (2000) proposed a definition of goal orientation stating that goal orientations are kinds of schemas that individuals use to evaluate their performance, determine success, and decide how they will approach a particular task. Goal orientation helps to answer the question of "why" and perhaps "how" the individual achieves a particular goal.

Goal Content

Goal Content in Education and Sport

The study of goal content has not been given much attention in either educational research or in sport. Bandura (1986, 1997) is the most prominent theorist who studied goal content in educational contexts. His work on self efficacy included the idea of proximal and distal goals. This idea is slightly different than classifying a goal as being specific or general. From Bandura's point of view, the goal in question could be specific or general. How the goals relate to each other is important. Bandura proposed that distal goals (i.e., long-term goals) may be met by breaking them down into smaller chunks, proximal goals (i.e., short-term goals) that can be met relatively quickly and support positive self efficacy and motivation until the distal goals are met. The concept of proximal and distal goals is used widely in health care in the form of short-term and long-term goals. A benefit of breaking goals down into proximal and distal goals is that the distal goals can be modified based on achievement (or not) of the more proximal, short-term goals. In this way, the parameters for success are modified, increasing the likelihood of achieving success.

In a study by Manderlink and Harackiewicz (1984), the effect of proximal and distal goals on intrinsic motivation was examined. They used an experimental design to

assign 66 female undergraduates to six different treatment groups. Pre-test and post-test measures of interest and enjoyment were obtained with the participants completing puzzles under varying conditions of proximal goals, distal goals, and no goals. After performing an ANOVA on the data, it was found that proximal goals correlated with improved self-perceptions of performance ability and greater immediate goal attainment. Distal goals contributed to task interest more than proximal goals. In this study, having either proximal or distal goals influenced goal interest and attainment more than having no goals. For rehabilitation, one might infer that short-term goals (proximal goals) in rehabilitation, can help a patient feel successful and feel that they have the competency to achieve future goals whereas, long-term goals help sustain the patient's interest throughout the entire rehabilitation process.

No literature specifically addressing goal content was located within sport psychology. An important distinction is warranted at this point. Although there were few studies within educational research and no studies within sport psychology that specifically targeted goal content, much research on the patterns of target goals created by students and athletes has been conducted in education and sport. The kinds of goals students most often select in achievement situations were of interest. The content of the goal was not as important as the kind of goal. This line of research is better discussed in the section on goal orientation, as this is where it eventually leads.

Goal Content in Rehabilitation

Much attention has been given to studying goal content in health care, specifically, rehabilitation. In the prior section on success in rehabilitation, the variations of definitions of success in rehabilitation were provided. Success was defined as meeting

set goals, reaching a particular outcome on a measurement scale, or demonstrating improvement with certain kinds of interventions. Competency based goals were used most often to define success. One thread that appeared in several studies was that success was easier to define when the content of the goals was very specific (i.e. target goals). Achievement of less specific goals was more difficult to measure. As discussed earlier, Rockwood (1994) addressed this issue in his application of GAS to the rehabilitation of the frail elderly. He proposed that general goals do not give clear direction for rehabilitation, while more specific and measurable goals do. Roessler (1980) also supported this idea in his early research on goals in rehabilitation. Goal content that was very clear to the patient could be motivating because expectations for performance would be explicit.

Other researchers studied the relationships between factors, other than specificity of goals, and success in rehabilitation. Bradley et al. (1999) conducted a qualitative study that examined a broad array of constructs related to goals. Interviews with open-ended questions were used to gather data about the goal setting process from various perspectives. The study involved 36 participants who were divided into three groups of four people each. Each group consisted of a patient, a caregiver, a case manager, and a physician. Four of the participants were unable to be interviewed. All patients in the sample (mean age = 72) had some degree of dementia. They were all living in their homes in the community and were able to participate in the study. In addition to the qualitative data, the researchers created their own measure of activities of daily living (ADL) and instrumental activities of daily living (IADL; e.g., meal preparation, housework, using appliances, and others).

The researchers related values to goals and found that with this population, a person can state a value for something (e.g., being able to care for oneself) but not state a specific goal that correlated with that value. Essentially, values did not always influence the goals patients identified. Likewise, the goals patients reported were not always valuable to them. They further posited that there were factors that mediated the process of identifying specific goals from values and general goals for this population. In their theory of goal setting (i.e., creating goals) in clinical medicine, Bradley et al. described three categories of factors that affect the process of setting specific goals. The first category is individual characteristics of the patient (e.g., risk taking, self-efficacy, and level of acceptance of disability). The second is disease characteristics (e.g., reversibility of the disease and urgency of the problem in question). The third category is interaction characteristics (e.g., interaction with family and medical staff, trust, and control). This is one of the few studies in health care that identified psychological and cognitive processes that influence goal achievement.

When developing a list of goals (i.e., goal setting), it is important to consider who is creating the goals. It has been increasingly important for health professionals to base goals on the desires of the patient receiving the care and not let others influence the goal setting process. Client centered care is a concept that has received much attention in health care in the last ten years (Pollock, 1993; Wilkins, Pollock, Rochon, & Law, 2001). In client centered care, the patient should be the center, actively guiding the medical services to best meet individual needs. If the client is unable to participate in health decisions, the family members are to keep the patient's wishes in mind as they make the

necessary decisions. However, there continues to be the influence of the health professional's opinion in goal setting.

In the study by Lawler et al. (1999), semi-structured interviews were performed with patients and their families, as well as the nurse specialist working with the patients. These interviews were conducted with 30 patients who had a stroke and 15 caregivers. Themes that emerged from these interviews were then used when performing a retrospective review of record books kept by the nurse specialists. They reviewed record books for 120 patients. Themes remained consistent in terms of the kinds of goals patients created. Patients described their hopes, or the ideal level of success they wanted to achieve, and then described their expectations for what level of success they thought they might likely achieve. It was within these hopes and expectations that the three categories of progress emerged (physical, psychological, and circumstantial). Although the nurse specialists focused on progress along these three categories, the patients were more focused on what they still were not able to do and talked about success more generally. The researchers found there were different interpretations of success and different goals were created from varying viewpoints (i.e., patient, caregiver, or nurse). They concluded that it was critical for the nurse specialist to work closely with the patients and their caregivers to ensure the patients' participation and motivation for their rehabilitation. In addition, the nurse specialist needed to remain aware of their patients' perceptions of success rather than just determining success from the professional or caregivers' point of view.

It is clear that goals play a very large role in rehabilitation. Treatment decisions are based on the extent to which goals are met. Goals require the participation of the

patients and sometimes significant others for their creation. Rehabilitation professionals need to be aware of how much they influence the goals created for their patients. Short-term goals can be motivating for patients when working toward their long-term goals. Goals are related to outcome measures when evaluating success. Goals also provide information for appropriate discharge planning. It seems unanimous that the content of all goals should be very clear, specific, and measurable. Despite the effort to write goals in this manner, patients do not always attain their goals or achieve as much success in rehabilitation as is possible. It is important to investigate the reasons that contribute to the way individuals approach goal achievement. Further investigation of these reasons is needed for rehabilitation medicine to aid in the development of more effective and efficient treatment programs.

Achievement Goal Orientations

Researchers studying achievement goals in education quickly recognized patterns of goals and relationships with explanations for why certain goals were chosen for particular subjects, or within individual students. In terms of Pintrich's (2000) three goal structures (i.e., target goals, mid-level goals, and general goals), achievement goals would fall into the mid-level goal category. Target goals specify particular behavioral outcomes, while general goals contain ideas or desires that can be related to individuals' values and beliefs. Mid-level goals, by comparison include some reason why the goal is to be achieved. Not only do these mid-level goals list a target behavior, but they also provide some reason why students want to achieve these ends.

Initially, two main patterns that describe the kinds of achievement goals pursued by individuals, which linked ability perceptions and goals, were further defined in a

series of experimental studies performed by Jagacinski and Nicholls (1984) and Elliott and Dweck (1988): task or mastery achievement goals and performance (or ego) achievement goals. Jagacinski and Nicholls (1984) provide definitions of these two types of achievement goals from their studies that linked task and ego achievement goals to perceived competence and ability. These researchers defined task achievement goals as those goals that convey the student's desire to learn new content and skills. Ego achievement goals convey the student's tendency to compare performance and ability to others. The terms used to label these goals and related constructs vary. As Murphy and Alexander (2000) noted, task goals are also referred to as mastery, learning, and task involved goals. Ego goals are also referred to as performance or ego-involved goals. For the purposes of this review, the terms mastery and performance will be used when discussing the two types of achievement goals and their related constructs.

In a series of five studies, Jagacinski and Nicholls (1984) examined mastery and performance goals of a total of 106 students enrolled in an educational psychology undergraduate program. The students were assigned to treatment groups that manipulated the type of achievement goal to be pursued with the amount of effort for tasks involving learning math and learning Italian. A 2 X 2 matrix was used for three of the four studies to see the effect of mastery or performance involvement and effort on perceived competence and ability. Students who were in the mastery involvement/high effort group and the mastery involvement/low effort group rated their competence and ability to be high. Students who were in the performance involvement/high effort group did not rate their ability as high because they seemed to correlate increased effort with low ability. Students in the performance involved group rated their ability as low. Perceptions of

ability in the performance involved groups were based on a comparison of their own levels of effort and outcome with those of others.

Because Jagacinski and Nicholls (1984) manipulated the conditions for mastery and performance goals and the amount of effort in the first four studies, these researchers then examined the types of relations that might occur more naturally, with less manipulation. In the fifth study, the students were instructed to think of tasks they enjoyed in their spare time (mastery involved) or tasks for which outstanding performance was required (performance involved). Then the students were assigned to groups in which the amount of effort for the tasks was manipulated.

On the basis of these five studies, Jagacinski and Nicholls (1984) determined that those students who wanted to achieve or learn in order to master the content, regardless of how they perform in relation to others, displayed similar patterns of mastery involvement and had mastery achievement goals. On the other hand, those students who were more concerned with comparing their ability with others, rather than just truly learning the content, demonstrated similar patterns of performance involvement and had performance oriented achievement goals. When placed in the mastery or performance involvement groups, the students in those groups perceived ability and effort differently when effort was manipulated.

In a related study, Elliott and Dweck (1988) examined the goals of 101 fifth grade students and their perceptions of ability, and related them to task choice and response to difficulty for a pattern recognition task. The students were placed in experimental groups using a 2 X 2 (i.e., goal/ability) matrix. Ability level was manipulated by providing feedback consistent with promoting high ability or low ability beliefs. Students who had

mastery or learning goals and who perceived their ability as being high or low used effective problem-solving skills, and chose to participate in the task even at the risk of making mistakes and failing. They were more concerned with learning. Students with performance goals and perceived a high level of ability used effective problem-solving as well, but chose to work on the task only at a moderate level of difficulty to display competence. Students with performance goals and low perceived level of ability used poor problem-solving strategies and chose easy tasks to avoid displaying incompetence.

The studies by Jagacinski and Nicholls (1984) and Elliott and Dweck (1988) illustrate the link between ability perceptions and the kinds of goals students can pursue in academic contexts. Students who are placed in a mastery situation generally have mastery goals and tend to view ability as a trait that can be changed, based upon the effort extended to improve the ability. However, students who are placed in a situation in which their performance will be evaluated against others generally have performance goals and tend to think of ability as a more stable trait that is difficult to improve (Dweck, 1986). Learning or mastery goals are thought to be the most adaptive since they focus on learning and using the self as a reference, whereas performance goals can be less adaptive since they focus more on how students perform in relation to others (Elliott & Dweck, 1988; Nicholls et al., 1985; Pintrich, 2000).

With the identification of these two types of achievement goals, researchers began to examine patterns of behavior associated with having either mastery goals or performance goals. Distinct links were made between perceptions of ability and what constitutes success in a given domain, why individuals would chose to work toward a specific goal, how they engage in the pursuit of the goal, and how the actual performance

is evaluated. These linkages were called goal orientations. In educational research, a goal orientation is defined as "a set of behavioral intentions that determine how students approach and engage in learning activities" (Murphy & Alexander, 2000, p. 28). Pintrich (2000) added that goal orientations include beliefs about success, ability, effort, purposes, standards, competence, and errors.

Unlike the general educational psychology literature, the behavioral intentions for the ways patients approach rehabilitation tasks and goals have been overlooked for the most part in the rehabilitation research. A few studies have attempted to describe the cognitive processes and patterns of behavior present in rehabilitation that influence the ways in which goals are achieved (Bradley et al., 1999; Elliott et al., 2000; Roessler, 1980). Because goal orientations have not been studied extensively in rehabilitation, this review will survey the research on goal orientations from the educational literature dealing with achievement motivation. In addition, research on goal orientations from sport behavior will be included, because the achievement tasks in that domain can be similar to what is expected in rehabilitation.

Goal Orientations in Academic Contexts

As noted, Pintrich (2000) stated that goal orientation is an organized system for approaching and evaluating one's performance. Goal orientations are not the actual achievement goals (i.e., mastery and performance goals) but they are the beliefs people hold about their potential to attain the goals in question. These beliefs center around ability, competence, effort, importance, success, and standards (Dweck & Leggett, 1988; Nicholls, 1989). Although goal orientations influence the selection of a mastery or

performance achievement goal in a given situation, goal orientations are more complex than these mid-level goals Pintrich (2000) described.

Goal orientation involves both the achievement goal and the behavioral intention toward a particular task (Murphy & Alexander, 2000). Goal orientations have been applied more to domain areas than target goals since goal orientations imply an overall way of approaching or thinking about a situation (Murphy & Alexander, 2000). For example, a person can have one orientation toward mathematics and another toward physical education. The orientations are different because the individual may perceive more or less ability, competency, importance, or potential for success in one domain than another.

Social-cognitive research on goal orientations has yielded an array of findings related to goal orientations. Some of the first researchers to examine goal orientations were Dweck and Nicholls. They and their colleagues performed several studies of goal orientations with children and young adults of various ages (e.g., Duda & Nicholls, 1992; Dweck, 1986; Dweck & Leggett, 1988; Jagacinski & Nicholls, 1984; Nicholls, Patashnick, & Nolen, 1985). Dweck (1986) was concerned with how perceptions of ability and intelligence influenced the adoption of certain kinds of goals. On the other hand, Nicholls (1989) was concerned with how children and adults perceive goals and the relation of that perception to ability and learning. These views are different. Dweck proposed that ability judgements influence the goal orientation pattern; whereas Nicholls proposed that goal orientation patterns influence behavior. After reading the literature, it seems that there is support for both of these perspectives. Through their studies, Nicholls and Dweck uncovered two main goal orientations toward achievement tasks. They are

mastery goal orientation and performance goal orientation. Similar terms and definitions were used to describe these goal orientations as were used to describe their corresponding achievement goals. However, goal orientation is a broader concept and is assessed differently in the literature. Research on goal orientation involves less manipulation of variables as was performed in the aforementioned studies on achievement goals.

Views on goal orientations expanded from a dichotomous model (i.e. mastery versus performance orientation) to include other types of goal orientations. An early study by Nicholls et al. (1985), which examined goal orientations and their relation to the beliefs about the purpose of education and causes of success, actually included a third orientation—work avoidance. In this orientation, students find it more useful not to become engaged at all in the learning task and to avoid any effort to learn. This study focused on an overall orientation to school, not a specific subject in school. They used ninth and twelfth graders from two schools with a total of 587 students for the study. Students were given questionnaires that assessed their ideas on the purpose of schooling, personal goal in school (goal orientation), satisfaction with school learning, perceived causes of success and perceived ability. Correlations were calculated on the data from each scale.

Based on correlational analysis, Nicholls et al. (1985) found that a mastery orientation correlates positively with perceptions that students succeed in school when they work to understand. Further, the researchers found that performance goal orientation correlated with ideas that the purpose of school was to improve potential for economic gain and wealth, and that impressing the teacher and others was important to meet these ends. Nicholls et al. found that the work avoidance orientation correlated with the ideas

that the purpose of school was to improve wealth and economic security, and that success in school did not have anything to do with ability or effort. Those holding to this orientation thought that success in school had more to do with luck and impressing the teachers. Nicholls et al. illustrated that a particular goal orientation can lead to individuals choosing different courses of action in an achievement situation. In the end, individuals from all three groups of goal orientations could be viewed as successful. The paths chosen to reach the outcome could be very different and the amount of actual learning would be very different. In academic settings, learning is the overall goal and purpose of education. Identifying the pattern of behavior that leads to this end is of most importance to educational researchers.

Performance Goal Orientations. After the work avoidance orientation was identified in educational research, Elliot and Harackiewicz (1996) further dissected the goal orientation patterns of students. These researchers conducted a key study that outlined two specifications of the performance goal orientation pattern in a way that was not fully considered by earlier researchers. They performed two experiments, one with 84 college undergraduates and the other with 92 college undergraduates. They partitioned the performance goal orientation into two separate orientations: performance-approach and performance-avoidance orientations. They described the performance-approach orientation as one in which the individual is still concerned with how they perform in relation to others, but they engage in learning tasks that will demonstrate ability or figure out a way to engage in a task in a way that best displays their ability. This orientation is geared toward displaying competence. The performance-avoidance orientation leads individuals to avoid becoming engaged in tasks that demonstrate inability. This

orientation is geared toward not displaying incompetence. Elliot and Harackiewicz proposed that different sets of affective and cognitive processes are evoked with each orientation. Performance-approach had similar processes evoked as the task mastery orientation. The only difference between the mastery orientation and the performance-approach orientation is that in the performance-approach orientation, individuals are still concerned with their performance in relation to others.

In the study, Elliot and Harackiewicz (1996) demonstrated that intrinsic motivation is influenced by a person's goal orientation. In particular, the two types of performance goal orientation influenced intrinsic motivation in different ways. In Study 1, they set up four experimental groups with each group given a particular set of instructions for solving word puzzles. The instructions were written in a way that forced a particular goal orientation (mastery, performance-approach, performance-avoidance, and performance neutral). Participants were then administered a questionnaire that assessed levels of interest and enjoyment (indicators of intrinsic motivation) at three different points during the experiment. They found that when taken together, the performance goal orientation (including both performance-approach and performance-avoidance) did not undermine intrinsic motivation. However, when the two performance orientations were separated, a significant negative effect was found with the performance-avoidance orientation. The second experiment's design replicated the first with the exception of not having a fourth group that had no forced goal orientation, and the directions given to each group were altered to provide a more subtle manipulation of the two performance orientations. Their findings in the second experiment did replicate those described earlier in the first experiment.

What is most interesting to note from these findings is that there was a significant difference in the two types of performance goal orientations after they were analyzed separately. Intuitively, one could argue that performance goals in general are not all maladaptive, contrary to what the literature has shown prior to this study. This study gives empirical evidence that performance-approach goals can be adaptive and result in better learning outcomes. However, educational researchers continue to debate the positive and negative aspects of both types of performance goal orientations (e.g., Kaplan & Middleton, 2002). Most of this discussion has included situations where individuals may have multiple goal orientations (e.g., a performance-approach goal orientation and a mastery goal orientation).

Multiple Goal Orientations. Pintrich (2000) proposed the idea of multiple goals in learning and achievement. He proposed that individuals could perceive a learning task from more than one orientation. He used a within-subjects/repeated measures experimental design with 150 eighth and ninth graders. The study was conducted over a longitudinal time period so that the outcomes from behaving according to a particular goal orientation could be realized by the participants. The groups were created based on students' responses on two questionnaires: a mastery orientation scale and a performance orientation scale. In this way, students could be high or low on either or both scales. Pintrich then assigned the participants to the following four cells: low mastery/low-performance, low-mastery/high-performance, high mastery/low-performance, and high mastery/high-performance. He examined the effects the four combinations of goal orientations would have on self-efficacy, task value, test anxiety, affect, cognitive strategy use, and grades.

Results showed that the high-mastery/low-performance and the high-mastery/high-performance groups did not differ significantly on any of the dependent variables. Those participants with a mastery orientation, as well as a performance orientation, influenced the dependent variables the same as those participants who just had a mastery orientation. For task value, the high-mastery/high-performance group showed higher task values than did the high-mastery/low-performance group. Overall, Pintrich (2000) found that having a high performance-approach goal orientation (scored high on the performance scale) in addition to a mastery orientation (scored high on the mastery scale) did not reduce the positive effects of just having a mastery orientation. Other findings were in line with previous research that showed performance goals alone were less adaptive and less conducive to learning than mastery goals. The low-mastery/high-performance group was less interested, less confident and did not have an overall positive affect about learning. This study provides additional support for the kinds of goal orientation patterns typically seen in classroom settings. High achieving students often seem to display a desire to learn, but also want the attention that is given when their ability is compared to others. It seems that they get intrinsic satisfaction from learning but also external approval from peers and teachers.

Classroom Goal Orientations. Another perspective on goal orientations that has been studied most by one researcher, Ames (1992; Ames & Archer, 1988) is that of the goal orientation of the classroom. Content taught in a classroom setting could be structured in certain ways that elicit different patterns of behavior from the students. Most of the prior research on goal orientations was focused on student qualities (i.e., the psychological, social, and cognitive states of the student). This new line of research (i.e.,

classroom goal orientation) explores the ways classroom practices influence students' goals and goal orientations. Ames and Archer (1988) examined classroom goal orientations in junior and senior high schools. They proposed that classrooms were environments in which different kinds of goal orientations could be pervasive. For example, a student could perceive one class as more mastery oriented due to the fact that there are fewer exams and grades are based on the effort one exerts for learning the material rather than earning grades. A class could also be perceived as being more performance goal oriented if grades and comparisons between students are stressed as a way to succeed in the class. Students will modify their behavior based on the type of goal orientation prevalent in the class environment.

Ames and Archer (1988) included 176 students in their study. Students completed questionnaires about the classroom goal orientation, learning strategies, task challenge, attitude toward the class, and perceived ability. Ames and Archer were concerned with revealing the relationships between the classroom goal orientation and the students' use of learning strategies, attitude, task choice, and ability attributions. They found that if the class was perceived as mastery oriented, the students used more effective strategies, preferred challenging tasks, had a positive attitude about the class, and believed that success followed effort. Students who perceived the class as being more performance oriented focused more on ability, evaluated ability negatively, and equated failures to poor ability.

What we know about goals and goal orientations in education is that students have patterns of achievement goals (Elliott & Dweck, 1988; Jagacinski & Nicholls, 1984). These patterns lead to an overall orientation that guides the students' behavior in

achievement situations (Dweck & Leggett, 1988; Nicholls, 1989). There are several kinds of orientation patterns (i.e., mastery, performance-approach, performance-avoidance, work avoidance) (Elliott & Harackiewicz, 1996; Nicholls, 1989; Nicholls et al., 1985). Orientations can shift from one domain to another and students can have a combination of orientation patterns for learning tasks (Duda & Nicholls, 1992; Pintrich, 2000). The classroom environment can influence the orientation selected and embraced by students.

Goal Orientations in Sport

As research on goal structures became more prominent in educational contexts, sport psychologists saw this line of research benefiting the sport domain as well. One of the first researchers to study goal structures, specifically goal orientations in sport, was Joan Duda. She collaborated on many studies with Nicholls, who was one of the first researchers studying achievement goal orientations in educational psychology. This body of literature is relevant to the current study because one can view the kinds of achievement tasks in sports as having similar components as achievement tasks in rehabilitation. Achievement tasks in educational research have centered on acquiring knowledge. Achievement tasks in sports center on acquiring a set of physical skills. In rehabilitation, achievement tasks center on acquiring new physical skills and new knowledge about functioning with a disability.

Some of the questions that lead researchers in sport psychology to turn to goal structures include: Why do people become engaged and maintain their engagement in sport and exercise activities and why do people select certain kinds of sport and exercise activities over others (Duda, 1989)? Duda was interested in examining the relationship between goals and physical activity. She proposed that sport and exercise contexts for

achievement contained all of the same factors dealing with choice, intensity, persistence, and performance, as found in educational achievement situations. Duda added that the sport domain provides other characteristics that make it well suited for an examination of the psychological processes that affect achievement. These additional characteristics include the fact that participation in most physical activity is voluntary, unlike the learning contexts in academic settings. Second, the performance outcomes are much more immediately obvious in sports than in academic settings. Third, the standards of excellence may be clearer cut in sports, making it an area that is consistently evaluated in relation to others.

Duda and others (Duda, 1989; Duda & Nicholls, 1992; Hodge & Petlichkoff, 2000; Seifriz, Duda, & Chi, 1992; Skordilis, Koutsouki, Asonitou, Evans, Jensen, & Wall, 2001; Standage & Treasure, 2002; Treasure & Roberts, 1995) found similar patterns of motivation and goal structures in sport, as outlined for educational contexts. Despite the assumption that all sport activities are ego involving, due to the competitive nature of sports, research has shown that there are two motivational patterns in sports: task involvement and ego involvement when one specifically addresses the personal goals of the athletes or participants.

Similar to task or mastery orientation in academic contexts, task orientation in sports includes a focus on improving skills, regardless of how others perform. Individuals with this orientation will view their ability in a given sport or exercise activity as having the capacity for improvement with consistent practice. They do not equate winning or losing with their ability. Rather, they evaluate their performance relative to the personal achievement goals they have set for themselves. Personal goals in this sense are like

target goals that Pintrich (2000) discussed. For example, a baseball team could win the game, but the pitcher might feel like he did not play his best according to the personal goal he set in terms of striking out a particular number of batters. In this case, a task or mastery oriented individual would go back and practice until he felt his ability improved. Success is defined more subjectively by personal improvement (e.g., doing the best possible) or attainment of personal goals (Duda, 1989).

The ego or performance orientation in sports is similar to the performance orientation in academic contexts. Sports participants with an ego orientation will be concerned with winning the game and demonstrating more ability than their opponent. In this orientation, success is defined in no way other than by winning the game or being the best in the sporting activity (Duda, 1989). In the sport literature the terms, task and ego orientations were used most often to signify the mastery and performance orientations, respectively.

Duda and Nicholls (1992) conducted a study that examined the goal structures in sports to see if there were similar patterns as those found in academic contexts. They were particularly interested to see if the goal orientation patterns were consistent across domains. Participants in their study included 207 high school students. Only 18% of this sample had not ever participated on a sports team of some kind in their life times. Students were administered two questionnaires, one assessing goal orientations in the classroom and one assessing goal orientations for sports activities. The participants also completed scales for beliefs about the causes of success, intrinsic motivation, and perceived ability. Results yielded a four-factor structure for the goal orientations for both academic and sport contexts. The four factors (i.e., task orientation, ego orientation, work

avoidance orientation, and cooperation goals) all had significant Cronbach alpha values. The cooperation orientation was not defined as a formal goal orientation in this study nor in other literature from education and sport. This study specifically referred to cooperation as "goal of cooperation" (p. 291). However, this work approach orientation was a salient component of achievement behavior in this study for academic and sport contexts. This study suggested that working with others was a method that could be used to achieve success. Beliefs about cooperation did not seem to pertain to beliefs about individual ability in the same way as the task, ego, and work avoidance orientations.

Through additional factor analyses, it was found that across domains (i.e., sport and academic), task orientation, cooperation, and beliefs that success is due to effort and collaboration correlated highly. Conversely, ego orientation and beliefs that success requires high ability and attempts to defeat others correlated highly. Interestingly, alienation in the classroom was correlated with alienation in sports. Also, those participants who believed that academic success resulted from external factors and deceptive tactics also believed this for sport activities. For the other variables in the study, there were no significant relations between domains. Duda and Nicholls (1992) concluded that broad beliefs about the world can be applied across domains, but that more specific motivational factors like intrinsic satisfaction and perceived ability are not necessarily construed in similar ways across domains. This coincides with findings in educational research. This cross-domain study has implications for future studies and use of similar instruments to measure goal orientations across domains.

Similar kinds of studies conducted in academic settings to examine goal orientations were also conducted for sport and exercise. For example, Duda (1989)

conducted a study with 321 high-school athletes that investigated the relation between goal orientation and perceived purpose of sport. Nicholls et al. (1985) did a similar study in an academic context. Unlike in academic settings, Duda found gender differences in goal orientations and beliefs about the purpose of sport. Females were generally more task oriented and believed that mastery and cooperation were important purposes of sport. Males were significantly more ego oriented than the females and believed that the purposes of sport were to enhance competitiveness, social status, and high status career opportunities. Overall, task orientation correlated positively with mastery, cooperation, active physical lifestyle, good citizen, and enhanced self-esteem. Ego orientation correlated positively with competitiveness, high status career, enhanced self-esteem, and social status. These overall findings were congruent with predictions based on research in academic contexts. Gender differences, however, were not predicted to have a significant effect for sport based on prior research in academic contexts. This is a significant finding to note. Gender differences may be more evident for achievement tasks that are associated with gaining physical abilities rather than gaining content knowledge.

Similar to the motivational climate research of Ames and her colleagues (Ames, 1992; Ames & Archer, 1988); researchers in sport psychology studied the motivational climate of sport contexts. One study by Seifriz et al. (1992) examined the perceived motivational climate in high school basketball. One hundred and five male basketball players from nine varsity teams were the participants in the study. They completed questionnaires that provided information about the players' perceived motivational climate, intrinsic motivation, and beliefs about the causes of success and their goal orientation. Consistent with findings in academic settings, an environment that was

perceived as task oriented focused on personal improvement, doing one's best, and basketball was enjoyed more. Unlike prior findings, Seifriz et al. (1992) did not find significant relations with the ego-oriented environment. They concluded that a task-oriented environment can occur alongside a high performance or low performance orientation. These findings seem logical given the nature of sports as outcome oriented. By adding mastery orientation to the sport activity, a difference in the climate of the sport environment was observed.

A related study by Carr and Weigand (2002) investigated the influence of significant others (i.e., teachers, peers, and sporting heroes) on the physical education environment and, in turn, the goal orientations of the participants in the study. Secondary school students (n = 266) from the United Kingdom completed surveys on goal orientation and perceptions of the motivational climate of their physical education classes emphasized by their teachers, peers, and sports heroes. Findings revealed that students with either high task or high ego orientations attended to those cues in the environment that were consistent with their goal orientation and, therefore, perceived the physical education class to be oriented in the same way. For example, a high task oriented child would be focused on the mastery feedback given by the teacher more than others, and would perceive the class as more mastery oriented. Of the three groups of significant others, peers had the greatest impact on those students who were ego oriented. Teachers had the greatest influence on those who were task oriented. These last two studies are consistent with educational research and provide support for the modification of environments to influence the motivational climate in which the students, athletes, or patients participate.

Much of the research on achievement goals and goal orientations in education has illustrated relations between goals, goal orientations, and intrinsic motivation. In sport, Standage and Treasure (2002) took a closer look at multidimensional situational motivation and how it relates to goal orientation. They used Self-Determination Theory (Deci & Ryan, 1992) as their theoretical framework and conceptualized motivation on the continuum proposed by Deci and Ryan. Participants in the study by Standage and Treasure included 318 14-year-old middle school students. Students were administered a goal orientation questionnaire and a situational motivation scale after attending their physical education class. The motivation scale focused on four of the six motivational patterns identified in Deci and Ryan's model (1992). Standage and Treasure (2002) found that task orientation was positively correlated with more self-determined types of motivation (intrinsic and identified regulation). Ego orientation was related to less autonomous types of situational motivation such as external regulation. Their findings were consistent with prior research that suggested motivational patterns that are more intrinsic correlate positively with the task orientation.

As in educational research, multiple goals were also studied in sport. Steinberg, Singer, and Murphey (2000) conducted a study with 72 beginning college golfers. They assigned the participants to four groups where a particular goal was emphasized (i.e., mastery/competitive, mastery, competitive, and no goal). They measured the levels of intrinsic motivation and task persistence in a repeated measures design. Students in the mastery/competitive group obtained significant increases in intrinsic motivation and task persistence. No changes in the other groups were found. Steinberg et al. also suggested that in a changing sport situation, the participant should be able to shift orientations and

that this ability to shift is adaptive. Individuals who only engaged in sports from one orientation would be limited in their ability to determine competence from all angles. These researchers bring up an idea that was not explored in academic settings. The changing environment of sports is a factor that is important to consider for this domain. In academic settings, the environment is easier to control than in sport, which may be a reason this factor was not explored.

Within the body of research in sport psychology on goal orientations, some researchers have chosen to explore goal structures of disabled children taking physical education, injured athletes and wheelchair athletes. This sub-section of research from sport is particularly relevant to the current study. The added dimension of dealing with a physical limitation and the associated psychological aspects apply directly to the proposed population for the current study.

Duda, Smart, and Tappe (1989) studied the adherence of injured college athletes to their rehabilitation programs. They looked at factors such as personal incentives (i.e., personal subjective goals), perceived options (i.e., choices for behavior in a given situation), and sense of self and how these influenced adherence to their rehabilitation. In addition, these researchers linked patterns of adherence to task and ego involving goals. A sample of 40 college athletes who sustained a sport-related injury and were scheduled for rehabilitation three times a week were included in the study. Because the participants were part of sports teams, they were required to attend the rehabilitation sessions. Therefore, adherence was measured by the actual number of sessions attended, completion of the exercise protocol, and exercise intensity as noted on a 5-point scale measuring effort completed by the trainer.

Through multiple regression and correlation analysis, Duda et al. (1989) found that the athletes' sense of self and perceived options predicted more of the variability in rehabilitation adherence than personal incentives. When considering personal incentives, the researchers classified the incentives as being task, ego, social, or extrinsic incentives. Since these personal incentives did not explain a significant portion of the variance, they concluded that motivational orientation for general sport activities did not apply to the specific rehabilitation activities, especially when attendance at the rehabilitation sessions was not completely voluntary with this sample.

Despite the findings related to the predictors of adherence to a rehabilitation program, in the correlation analysis, personal incentives (motivational pattern) were positively related to the athlete's task involvement in sport and perceptions of social support and efficacy of the treatment provided. Additionally, those athletes who were more self-motivated as part of their sense of self, tended to set more personal goals and this correlated positively with adherence. This study provides some insight into the psychological processes involved in rehabilitation from a physical injury and how they apply to motivational orientations.

Dunn (2000) conducted a study of children with movement disorders and their physical activity and identified two goal orientations: task and ego performance. She used a modified version of the Task and Ego Orientation in Sport Questionnaire (Duda, 1989) and the Perceived Motivational Climate in Sport Questionnaire (Seifriz et al., 1992) to outline the participants' (65 fourth to sixth-grade children) goal orientation and the perceived motivational climate in their physical education classes. She predicted that children with movement disorders would perceive themselves as having lower ability and

would be more ego oriented, due to constant comparisons with more able-bodied children. However, the opposite was found. These children tended to be more task oriented than children without movement difficulties. Dunn suggested that the children with movement disorders were provided a mastery environment, focusing on self-improvement rather than comparisons to others. The environment of the class and feedback received from family and teachers influenced the students' motivational pattern.

Goal perspectives and sport orientations of wheelchair athletes were studied by a few researchers (Skordilis, Koutsouki, Asonitou, Evans, Jensen, & Wall, 2001; Skordilis, Sherrill, Yilla, Koutsouki, & Stavrou, 2002). Skordilis et al. (2001) stated that assumptions about motivational patterns made for able-bodied individuals cannot be generalized to the disabled population, and that studies which specifically addressed the disabled population need to be conducted. Skordilis et al. (2001) were interested in exploring the goal perspectives of disabled athletes. Two hundred and forty-three wheelchair marathoners and basketball players, with a variety of disabling conditions, completed two measures of goal orientation in sports. The items on each scale were not altered for the disabled sample population. The factor structures for the two scales were fairly similar to the task and ego orientation patterns when used with the able-bodied population.

In addition to examining the validity and reliability of the sport goal orientation scales for disabled athletes, Skordilis et al. (2001) were also interested in finding out if there were gender and sport differences in the goal orientations of the athletes. Females were found to score lower than males on the competitiveness scale. Marathon athletes were higher in ego orientation than basketball players regardless of gender. The

researchers involved with the study were more concerned with establishing baseline data from a significant sample of disabled athletes. Providing statistical evidence of the goal orientation patterns for a sample of disabled athletes provided more useful information than generalizing patterns obtained for non-disabled persons.

In sport contexts, goals clearly play a large role in achievement, just as they do in other contexts such as education and health. Sport psychologists have demonstrated the viability of examining constructs across domains. It seems that in doing so, strength and merit are given to the constructs being studied especially if the conceptualization is the same for both domains. The mastery and performance goal orientations have been studied in education and sport, providing descriptions of the facets of achievement goals and goal orientations. Health care could benefit from this kind of systematic study of achievement goals. As Skordilis et al. (2002) suggested, findings from one sample cannot be generalized to another sample when there are significant differences in the two samples. Therefore, it becomes evident that in order to understand the motivational patterns in physical rehabilitation, studies need to be conducted with people receiving rehabilitation comprising the sample.

Goal Orientations in Rehabilitation

As discussed, goals have been used in health care extensively to set standards of performance and to determine if success has been achieved. The literature presented earlier also demonstrated the focus on goal content and factors that affect goal attainment. There has not been the same kind of focus on why individuals choose to work on certain health related goals and why they choose to work on them in a particular manner. A

handful of studies have examined the psychological factors that relate to goals and achievement in health care, particularly rehabilitation settings.

First, two studies were located that examined goal orientations of persons with mental illness (i.e., substance abuse and depression). Wing (1991) described two tracks of behavior during and after an alcohol addictions treatment program. The tracks were recovery track and relapse track. These tracks were discovered after using a qualitative research design and a grounded theory approach with ethnographic data. These tracks progress through four stages: denial, dependence, behavior change, and life planning.

An example of how this model unfolds can most clearly be seen between Stages II and III, movement from dependence to behavior change. The person in Stage II either depends on others to help them through the rehabilitation, or their jobs and relationships depend on them completing the program successfully. To move to Stage III, the person in the relapse track will start to drink again if the object of dependence is lost. The person in the recovery track will make a decision to become sober for themselves, not for anything or anyone else. The relapse track has similar characteristics as the performance orientation described in educational research, because the person is more concerned with external appearances or situations. The internal desire to become sober is similar to the mastery orientation. This study also highlighted a phenomenon that may not be present in academia: the orientation's impact throughout a process of achievement. This was the only health care study that addressed this aspect of goal orientations.

The second study on goal orientations in mental illness labeled the two orientations: validation seeking and growth seeking. Dykman (1998) applied the work of researchers of academic achievement goals to mental health, specifically depressed

clients. Validation seeking coincides with performance orientation because people with this orientation strive to "prove or establish their basic worth, competence, and likability" (Dykman, 1998, p. 141). Growth seeking coincides with task mastery orientation and people with this perspective strive for "learning, growth, self-improvement, and reaching their fullest potential" (Dykman, 1998, p. 141). One important point made by Dykman is that the orientation of a depressed person influences how the world is viewed. In addition to displaying behaviors that are validation or growth seeking, clients' perceptions of others' behaviors or events are construed differently. This finding is similar to what Carr and Weigand (2002) found in their aforementioned study related to the motivational climate of the sport setting. According to Dykman, this altered perception of events and behaviors can make someone more prone to depression or have a more difficult time recovering from depression if they have a validation seeking orientation.

Dykman (1998) used a 64-item questionnaire and did a factor analysis of those items to define the two categories of growth seeking and validation seeking. He also correlated findings from his construct with other measures of depression to see if those results would relate to the two orientations. They did correlate significantly.

The study by Elliott et al. (2000) discussed earlier, outlined two goal patterns among those with physical disabilities—goal stability and goal instability. Although not stated in the discussion of the study, these two goal patterns have similar characteristics as the mastery and performance orientations found in education and sport contexts. Since persons with goal stability were shown to have more adaptive responses when coping with their disabilities and have clear personal values and goals, they may be considered similar to a task mastery orientation. Persons with goal instability are highly influenced

by their surroundings and others. Because of this, their values and goals shift often, not allowing for adaptive responses to occur as they cope with their physical disability. This is similar to performance orientation.

The aforementioned studies were the only studies located that specifically addressed goal orientation in rehabilitation. Unlike the application of concepts from educational research to sport behavior, those studies use language dissimilar to language in educational research. Only one study (Dykman, 1998) linked findings with constructs that have been studied in other domains. This is not to imply that the exact same terminology needs to be used across domains. As seen in educational research on goals and goal orientations, different terms have been used. However, by recognizing the research that has been done in other domains and making some kind of link between these domains, a deeper understanding of the constructs may be achieved, especially when so much research has been completed in other achievement oriented contexts.

Group Differences in Goal Orientations

Group differences were reported in the literature on goal orientations from education and sport. Of note were the differences for gender and types of athletes. The differences among these groups were most prominent in the research from sport. A gender difference was reported by Jagacinski and Nicholls, (1984). In two out of five studies conducted by these researchers, women were found to have better conceptions of ability when a mastery orientation was emphasized in an academic context. In addition, women rated improvement higher and felt more pride in a mastery involved condition. Women also rated embarrassment higher for either condition of mastery or performance involvement when their ability did not result in better performance. In sport, Duda (1989)

found that women were more mastery and cooperation oriented in sporting activities. Males tended to be more performance oriented in sport activities.

Skordilis et al. (2001) also found gender differences among wheelchair athletes. Differences in goal orientations were found between wheelchair basketball players and wheelchair marathoners. From this study, wheelchair marathoners were shown to be higher in ego orientation than wheelchair basketball players. Although few, these studies suggest that there may be group differences for goal orientations in rehabilitation that require exploration.

Goal Orientation Scales in Education and Sport

Various methods have been used to study goal orientations. The review reveals that quantitative methods have been used the most. Many researchers in education and sport used experimental designs, manipulating the goal orientation condition and other variables, such as effort and intrinsic motivation (e.g., Ames & Archer, 1988; Elliot & Harackiewicz, 1996; Elliott & Dweck, 1988; Jagacinsky & Nicholls, 1984; Pintrich, 2000; Steinberg, Singer, & Murphey, 2000). These studies provide information about the ways goal orientations can be altered, which is helpful in designing programs that emphasize a particular orientation.

Other quantitative studies of goal orientation conducted in education and sport use a descriptive design to investigate the kinds of goal orientations individuals may display in certain achievement settings. These studies used scales that include items that are targeted for particular orientations. Some researchers have used separate scales for each orientation (e.g., Pintrich, 2000) and others have used scales that combine items to assess several orientations within one instrument (e.g., Duda & Nicholls, 1992; Midgley,

Kaplan, Middleton, Maehr, Urdan, Anderman, Anderman, & Roeser, 1998; Nicholls, 1989). The use of a scale to describe the goal orientations that naturally occur with persons in rehabilitation is proposed for the current study. Since this type of measure will be created for the rehabilitation population, a review of the psychometrics of these kinds of scales is warranted.

Nicholls (1989) developed the Motivation Orientation Scale (MOS) to assess goal orientation patterns among students in academic settings. The MOS is constructed with several items, related to selected goal orientations, that complete a sentence such as, "I feel successful in math when." This format reflects Nicholls' (1989) perspective that ability perceptions influence the kinds of goals individuals have and how they interpret success and failure. When Nicholls used the MOS in academic settings, participants were prompted to think about a particular class or subject and then answer the questions. This scale is particularly appealing when considering the proposed study. Nicholls focused the participant to think about events and feelings that centered on success.

Various versions of the MOS have been used by Nicholls (1989) to identify goal orientation patterns among second graders, fifth graders, to college undergraduate students. These scales identified the goal orientations of these groups of students via factor analysis. The ability of the MOS to provide a statistically significant factor structure for these student groups is documented in Nicholls's book, *The Competitive Ethos and Democratic Education* (1989). The scales used by Nicholls were internally consistent with Cronbach alpha values for each of the factors in the scales statistically significant. The lowest alpha value was .68. This alpha value was obtained for the ego scale when the MOS was used with second-graders. All other alpha values were in the

range of .78 to .91. Statistical analysis of the MOS was limited to Cronbach alpha values and exploratory factor analyses.

One study analyzed the MOS further. Jagacinkski and Duda (2001) conducted a study that examined various achievement goal orientation measures. The MOS was one of the measures examined with a confirmatory factor analysis. They found that the task orientation scale had lower, but acceptable, internal consistency than the ego orientation scale. There was better construct validity in the ego orientation scale of the MOS. Multi-sample analyses of the MOS have not been completed. Despite these drawbacks with the MOS, this instrument will be useful in the formulation of the items for the Goal Orientation in Physical Rehabilitation Questionnaire (GOPRQ), the scale being created for the proposed study.

Duda and Nicholls (1992) developed a scale similar to the MOS for the domain of sports. This scale was called the Task and Ego Orientation in Sport Questionnaire (TEOSQ). The TEOSQ has been statistically analyzed to a greater degree than the MOS. This scale has been used with junior high school, high school, and college students and athletes. The TEOSQ demonstrated good internal consistency with Cronbach alpha values of .86 for the ego orientation and .89 for the task orientation. A multi-sample confirmatory factor analysis of the TEOSQ performed by Chi and Duda (1995) examined the fit of the factor structure and internal consistency of the instrument across four groups of students (i.e., intercollegiate athletes, college students in skills classes, high school athletes, and junior high school sport participants). They found statistically significant internal consistency within each group of students.

Chi and Duda (1995) also found that there was not an identical two-factor pattern across all four groups. They concluded that the items on the TEOSQ were being construed differently across the groups and that the same underlying concepts were not being measured across the groups. The group that was most different in terms of their responses was the group composed of the college students taking skills classes. The researchers explained that the results were likely influenced by the fact that the other groups were composed of students who were able to think of a specific sport activity, rather than a general attitude toward sports activities as the college students in the skills classes did. Because the conditions for completing the questionnaire were not as specific as for the other students, the fit of the factor structure may have been weakened. These findings support the use and study of goal orientation and measures for specific populations rather than attempting to use an instrument that is more general. Although there may be similar goal orientation patterns across samples, comparing results between groups may not be statistically sound.

Midgley et al. (1998) examined goal orientations through several studies of over 5000 elementary and middle school students with the Patterns of Adaptive Learning Survey (PALS) (Midgley, Maehr, Hicks, Roeser, Urdan, Anderman, & Kaplan, 1996). PALS was formatted similar to the MOS and TEOSQ, assessing mastery, performance-approach, and performance-avoidance orientations from a more general perspective. Items in PALS referred to students personal achievement goals in school rather than achievement in a specific context (e.g., mathematics or sport activity). Several statistical analyses were performed with this instrument (i.e., convergent validity, construct validity, internal consistency, discriminant validity, and confirmatory factor analysis).

Through these analyses, the PALS demonstrated construct and discriminant validity. That is, this instrument was able to identify distinct constructs and the constructs were different from each other. The PALS also demonstrated good internal consistency.

A goal orientation scale used by Murphy, Buehl, Monoi, and Long (2002) that includes items that relate to the performance-approach and performance-avoidance orientations, as well as other orientations, was found be internally consistent with the overall reliability of .83. The development of this scale was influenced by the work of Midgley et al. (1998). The instrument developed by Murphy et al. has been used with college students from several countries (Fives, 2003). However, multi-sample analyses on the actual measurement tool have not been conducted to date. Despite the limited statistical analysis on this instrument, it will be helpful in designing the items for the questionnaire to be used for the proposed study that correspond with the performance-approach and performance-avoidance orientations.

The aforementioned scales have been shown to provide statistically significant data regarding goal orientations with various populations. It may prove useful to formulate a goal orientation scale to identify goal orientations among those with physical disabilities in the context of rehabilitation in a similar manner.

Relevance of Goal Orientation Research to Rehabilitation Success

The literature review has provided the reader with theoretical and empirical perspectives on how success is defined in rehabilitation and how goals have been studied and used in health care, education, and sport contexts. Several points have become clear with regard to what is known about success and goals in these domains. These finding relate to the research questions underlying the proposed study.

Specifically, the first three research questions in this proposal are concerned with the different ways success is defined in physical rehabilitation, the factors involved, and how the definition of success is different for the professional and patient. To help answer these questions, the review opened with an exhaustive review of literature outlining the ways success is defined in rehabilitation. From this review, it seems that goal attainment is used extensively in health care, especially rehabilitation settings, to define success. In addition to the use of goals to define success, outcome scores are used to quantify the level of success achieved by patients receiving rehabilitation services.

The construct of goals has been studied from a variety of perspectives. One perspective examines the content of the goals. It has been illustrated through this literature review that goal content has been given much attention in rehabilitation research studies. It seems that the purpose of these kinds of studies was to provide information to help create better rehabilitation goals that would be more accurate to make judgments about progress and success during the rehabilitation process. In writing or deciding the content of the goal, studies have shown that goal setting is influenced by several factors. One factor involves who actually does the goal setting. Another involves how specific the goals are, and how specificity affects goal achievement. Self-perceptions can also affect the content of the goals. Self-perceptions were not given a great deal of attention in the rehabilitation studies.

Another perspective from which to view success examines the factors that affect goal achievement. These factors were not related to goal setting. These factors were related to the type of disability, social support, age of the patient, and self-efficacy among others. Potential discharge placement also seemed to have an influence on the

determination of success in rehabilitation. Most of the factors identified in the literature review are fairly stable. There would not be much opportunity to modify these factors to improve performance. Therefore, it seems that these factors actually pre dispose certain patients to low levels of success, especially if one defines success by the level of independence achieved.

The literature review has shown that health care leans toward quantitative measures of success more than qualitative. The wide use of outcome measures such as the FIM highlights the reliance of rehabilitation professionals on these kinds of measures, which are used across various diagnostic groups to define success. Even the use of goals was quantified via the GAS. Evidence for the validity of these measures was provided and illustrates the reason why these measures are used so prominently in the U.S. as well as in other countries.

What remains unclear is how patients define success. The ways health professionals define success is clear. How patients define it is not. The review provided few studies that studied this aspect of success in the rehabilitation process. Patients may perceive the rehabilitation process in a different way than the professionals providing the services. Success for the patient may mean something more than just meeting goals. What is still unclear is the motivational process that keeps patients working toward their specified goals.

As in any other achievement context, there are individuals who will be active participants in the learning process during their rehabilitation and those who would rather be on the fringes, doing just enough to get by without investing the effort expected. As a part of understanding how people adjust to disability, it seems important to understand

how they also persist in rehabilitation activities day after day when their futures may not be very positive. Understanding how patients define, or in most cases, re define success would be beneficial to all rehabilitation professionals. Motivation has been studied to a great extent in educational research. I believe that rehabilitation could benefit from findings from this area. Research from educational contexts that particularly emphasize goals could inform health professionals of other aspects of writing and achieving goals that have not been studied well so far in rehabilitation medicine.

The second part of the literature review focused on providing a sample of the research that has been completed in education and sport domains that specifically address goals and patterns of goals that relate to different motivational processes. Achievement in rehabilitation combines the kinds of achievement tasks that are in education (gaining knowledge) and in sport (gaining physical skills). Goal research in educational contexts makes the distinction between "what" people achieve and "why" or "how" people achieve. These distinctions help to categorize the research conducted in health care. It is clear that most of the studies in health care fall into the category that examines what a person achieves.

What is lacking in rehabilitation is research that examines why and how individuals in rehabilitation achieve their goals from a motivational stand point. Perhaps researchers in rehabilitation medicine have limited their view of the role of patient motivation in providing effective intervention due to the fact that much of medicine has been provided in a prescriptive fashion (Bradley et al., 1999; Haas, 1993; Lawler et al., 1999; Pollock, 1993). Health professionals determine the problem and the patient follows the instructions to improve the health condition. Perhaps there is an assumption that the

"why" question has already answered in that all patients want to get better and that is what motivates them. The "how" question may be subsumed under the prescribed treatment plan with the health professional outlining how goals should be achieved rather than examining patients' beliefs of how patients should go about achieving their goals in rehabilitation. As individuals are increasingly required to be more responsible for their own care (e.g., earlier discharges from hospitals, poorly covered health services by insurance providers, or emphasis on prevention) it seems that understanding motivational aspects of health care would be beneficial. Goal orientation is one area of motivational research that seems warranted, but which remains lacking in rehabilitation medicine.

Several goal perspectives were presented related to motivation and achievement goals in educational contexts. Corresponding literature from sport psychology was also presented. In both contexts, it was determined that students and athletes approach achievement tasks and evaluate their performance in these tasks from two main orientations. These goal orientations were consistent across both domains. This evidence implies that these orientations may be similar in other domains. The question remains whether similar goal orientation patterns occur in rehabilitation? This is the primary question to be answered by the current study.

In education and sport research, links have been made between the types of goal orientations and success in achievement tasks. For instance, it was shown that a mastery orientation correlates with improved learning and better performance in sport activities. It was also shown that students and athletes can have multiple goals and that the combination of mastery and performance-approach goal orientations resulted in higher levels of achievement. This phenomenon has not been examined in rehabilitation.

Through the use of similar methods to assess the goal orientation patterns in education and sport, the goal orientation patterns of patients in rehabilitation will be uncovered. By gaining the therapists' perception of specific patients' levels of success or progress in rehabilitation through the use of a questionnaire, goal orientation patterns will be linked with more or less success.

CHAPTER III

METHODOLOGY

This study sought to examine the ways in which success is defined in rehabilitation, the patterns of goal orientations in physical rehabilitation, as well as the relation of particular goal orientation patterns to success in the rehabilitation process. Through the use of questionnaires constructed to fit the rehabilitation setting, the goal orientation patterns patients demonstrate in rehabilitation and the perceptions of patient success from the patients' and therapists' points of view was investigated. In addition to the quantitative data gathered from the questionnaires, self-report information about perceptions of success and goals from patients was gathered through interviews. The self-report information supplemented the interpretation of the quantitative results.

In this chapter, details will be provided regarding the participants, measures, and procedures used for the initial pilot study, as well as the full study. A review of the pilot study and answers to questions posed specifically for the pilot study will be presented first. Details regarding the methods for the full study will be presented second. Participants, measures, and procedures were not significantly modified for the full study after completion of the pilot study. Therefore, an extended description of the measures used in the pilot and full studies will be outlined in the discussion of the methods for the full study. Specific procedural changes, all be they minor, for the full study as a result of the pilot study will also be summarized. Please note that pilot study data were included in the full study, since research methods were not significantly altered.

Pilot Study

The pilot study was a smaller version of the full study. The primary purpose for conducting this pilot study was to obtain information about the Goal Orientation in Physical Rehabilitation Questionnaire (GOPRQ). This purpose was to refine the items and methods for administering the measure that might be deemed necessary. Results from the pilot study provided the researcher with an idea of the results that might be found with a larger sample. This was useful in guiding the research process.

Questions addressed with the pilot study included:

- Is the GOPRQ a measure that can be completed by typical patients receiving rehabilitation?
- Will the GOPRQ demonstrate the potential to identify goal orientation patterns among patients receiving rehabilitation?
- What goal orientation patterns emerge with a small sample that might be replicated with a larger sample?
- Will the patient interview questions disclose beliefs about success from the patient's viewpoint?
- Will the therapists provide adequate data about of their patients' success with the selected questions?

Participants

Patient participants (n = 20) were obtained from a regional, urban, acute in-patient rehabilitation hospital in the mid-Atlantic area after obtaining institutional review board approval from the hospital's research institute. Specifically, the patient participant group consisted of persons at various points in their rehabilitation. The length of stay at the

hospital averaged one month. The patient participants had a variety of disabilities including spinal cord injury, stroke, arthritis, fractures, and cardiac and femoral by-pass grafts. Those patients with disabilities that would likely involve cognition difficulties (e.g., stroke and brain injury) were not selected for the study if they had a FIM (Functional Independence Measure; Dodds et al., 1993; Linacre et al., 1994) score below six on the social cognition and communication scales. This score indicated that those patients did not have the cognitive skills necessary to understand directions and report their thoughts accurately.

For the purposes of this pilot study, as well as for the full study, all of the participants were 18 years of age or older and able to communicate in English. All participants needed to have the ability to complete the questionnaire by hand or with an alternative writing device (e.g., pencil gripper, hand splint, or mouthstick). I obtained patient participants by soliciting referrals from the occupational therapy supervisor and therapists. These individuals referred patients to me according to the patient inclusion requirements for the study outlined above. Patients were also recruited by reviewing medical records of newly admitted patients to evaluate their appropriateness for the study. Care was taken to ensure that only the stated criteria were used to select patients for the study. Patients were not excluded from the study based on sex, age, disability (unless the disability related to a FIM score lower than 6 on the social cognition and communication scales), or other characteristic not specified in the eligibility criteria.

Each patient was asked if they would be willing to participate in the research study. If they were agreeable, an explanation of the study was provided. Each patient was given the opportunity to ask questions or withdraw from the study at any time. Informed

consent forms and authorizations to use and disclose health information were obtained from all of the patient participants prior to gathering data (see Appendix E). There were 6 males (30%) and 14 females (70%) in the pilot patient sample. Of these participants, 9 (45%) were Black/African-American and 11 (55%) were White/Caucasian.

Diagnoses of the patient participants were categorized into groups indicating the level of disability. These groupings, outlined below, were used for the statistical analysis of the quantitative data.

- Diagnosis/Severity of Disability
    - Severe Group: This group consisted of persons whose diagnosis and the severity of their disability did not allow return to prior functioning and require significant alterations in lifestyle. Examples of diagnoses included in this group were quadriplegia, brain injury, and stroke that resulted in the use of a wheelchair, above the knee amputation, and multiple sclerosis that resulted in the use of a wheelchair.
    - Moderate Group: This group consisted of those persons whose diagnosis and the severity of their disability allowed for return to prior functioning but with some alteration in methods and less significant lifestyle adjustments. Examples of diagnoses included in this group were paraplegia, brain injury, and stroke that resulted in the use of a cane for ambulation, below the knee amputation, and multiple sclerosis that resulted in the use of a cane.
    - Temporary Group: This group consisted of those whose diagnosis and the severity of their disability was expected to be temporary with the patient

possessing the potential to return to prior functioning after a few weeks or months of rehabilitation. Lifestyle adjustments were expected to be temporary. Examples of diagnoses included in this group were arthritis resulting in joint replacement, mild brain injury or stroke that resulted in no movement difficulties but some cognitive difficulties, hip fracture, laminectomy, and coronary artery by-pass surgery.

- Age
    - Senior Adult Group: Patients who were 60 years of age or older were included in this group.
    - Middle Adult Group: Patients who were between the ages of 35 and 60 were included in this group.
    - Young Adult Group: Patients who were between the ages of 18 and 34 were included in this group.

The patient participants for the pilot study fell into the following disability groups: 9 (45%) had temporary disabilities, 7 (35%) had moderate disabilities, and 4 (20%) had severe disabilities. Patients in the pilot study fell into the following age groups: 1 (5%) was in the 18–34 year-old category; 9 (45%) were in the 35–60 year-old category; and 10 (50%) were in the over 60 year-old category. It was anticipated that the sample for the full study would have similar demographics with a more diverse representation of race/ethnicity and diagnoses. Each patient in the pilot study, except one, agreed to complete both the interview and questionnaire. One patient declined participation in the interview.

Two of the 20 participants needed assistance with writing due to their physical condition, which limited their ability to use their hands for fine motor tasks. Writing assistance was provided by this investigator. This aspect deviated from the initial eligibility requirements in the research proposal. However, this change seemed to be a reasonable alternative given the environment and manner in which the data collection actually took place. This will be discussed further in the pilot procedures section of this chapter.

Several patient participants requested that the questionnaire items be read to them. This was provided in a way that no particular item was emphasized more than another. Patients' requests to have the questionnaires read to them could be reflective of the patient's level of energy or ability to comprehend verbal information better than written information, especially after completing the consent forms.

As mentioned, each patient read and signed two consent forms. A total of 7 pages of information were required to be read and understood before participating in the study. The Authorization to Use and Disclose Health Information Form (Appendix E) was rather complicated in terms of the terminology used and required some explanation and discussion before its content was fully understood. Possibly, those patients who then preferred to have the questionnaire items read to them did not want to read anything else after reading the consent forms. An observation made by this researcher is that it seemed that patients who had the questionnaire items read to them were perhaps more reflective in the answers they provided as it prevented the patient from reading an item too quickly and misunderstanding the item. It also allowed the patient to ask more questions when an item needed to be repeated.

Therapist participants were recruited at an introductory inservice presentation to the occupational therapy staff at the rehabilitation hospital. Care was taken to only provide the information needed to gain the therapists' support and omit information that might bias their responses on the Therapist Questionnaire. After explaining the study and answering their questions, the majority of the occupational therapy staff (90%) agreed to participate in the study and signed informed consent forms at that time. Additional therapists were recruited after additional questions were answered at a later date. Therapists were recruited for both the pilot study and the full study at the same time.

For the pilot study, a total of 7 therapists completed therapist questionnaires regarding their respective patients participating in the study with a total of 16 completed questionnaires submitted. Demographic data on the therapists were not obtained; however, the majority of the therapists were female (90%) and had at least 1 year of experience as an occupational therapist.

Measures

Four measures were included in the pilot study. The patient participants completed three: the GOPRQ, demographic data form (Appendix D), and interview questions. Patients in the pilot study answered interview questions related to administration of the instruments, as well as questions related to their perceptions regarding their goals and motivations. The therapist participants provided answers to specific questions related to their patients' success on the Therapist Questionnaire. Both questionnaires (i.e., GOPRQ and the Therapist Questionnaire) were developed by this researcher based on related questionnaires used in education and sport research, as well

as through consultation with a focus group of therapists. Samples of the GOPRQ and Therapist Questionnaire are provided in Appendix A and B, respectively. All four of these measures were used, unmodified, in the full study. Therefore, a full explanation of the study measures is provided in the section dedicated to the full study later in this chapter.

Procedures

Patient Participants

All data from patients were collected solely by this investigator in patient rooms at the end of the day or on a weekend day. Several attempts were made to collect data during the day and in a group format. The entire administration and collection process averaged 30 minutes per patient. It was expected that the questionnaire could have been administered in a group format during working hours taking no more than 15 minutes to complete the entire process. However, due to the complexity of the consent forms, additional individual time was needed in order to have a truly informed consent for study participation. In addition, the patients were too busy and preoccupied with completing their therapy sessions during the day to have the time and concentration required to participate in the study other than in the evening and on weekends.

After signing the consent forms, each patient completed the GOPRQ and demographic data form. Patients were reminded that any information they provided would be kept confidential and that their responses on the data sheet, as well as the questionnaire and interview, would be coded with a number so that no identifying information would be publicized. Every patient in the pilot study (n = 20) were asked to answer 5 interview questions related to their thoughts and perceptions about success in

rehabilitation (see Appendix C.) Pilot study patient participants also answered 3 questions related to the administration procedures of the GOPRQ. These administration questions were useful in the pilot study so that alterations to the administration procedures could be made for the full study. Responses from these questions are discussed next.

During the patient interview in the pilot study, patients were specifically asked about administrative procedures, such as how easy or difficult the questionnaire was to complete and if they had any particular difficulty with specific items on the questionnaire. In terms of how patients reacted to the administration of the questionnaire, all of the patient participants except two responded that the questionnaire was easy to complete. Of the two who did not think the questionnaire was easy to do, one stated that it was "OK, but couldn't do number 9." The other patient thought it would have been difficult if explanation had not been provided. All of the participants felt they had enough time to complete the questionnaire. These responses suggested that the patients did not feel rushed and were given the time they needed to complete the questionnaire to the best of their ability.

When asked about specific items that they found difficult or were unsure how to answer, eight patients did not indicate any specific items that posed difficulty for them. Six patients responded that "a few" questions were difficult but did not specify those items. Another three patients did specify items that they found difficult to answer. One patient reported that Item 3 was difficult but did not give a reason. Another patient thought that the items that related to how he thought about others (i.e., Items 2, 8, 11, 14, 17) were hard because he did not think about rehabilitation in that way.

Another patient reported that Item 20 was difficult to answer because of the wording. Other patients informally gave an indication that this was a difficult item as well by needing to have it repeated or explained on several occasions. An alternate wording was created for this item to be used when clarifying that item. Specifically, the following clarification was offered: "I do the therapy just so my therapists don't think I can't do anything." When this wording was posed to several patients, they seemed to understand it better. This wording still reflects the performance-avoidance orientation in that it indicates that the patient is willing to do the therapy but only because it is required and to not look bad in front of the therapist. Since some of the patients did understand Item 20 the way it was originally written, the Item was not changed for the full study. However, the alternate wording was ready to be provided if needed.

Therapist Participants

Therapists were provided with Therapist Questionnaires for each of their patients in the pilot study. These questionnaires were placed in the therapists' office boxes enclosed in an envelope to maintain the confidentiality of the patient. Therapists then returned the questionnaire in the sealed envelope to the designated deposit box in the staff room. Therapists were instructed to complete the questionnaires as quickly as possible so that the timing of their responses would coincide with the timing of the patients' responses on the GOPRQ. This method of administering the Therapist Questionnaire was expected to be effective.

The only issue that influenced the therapist participation in the pilot study was the timeliness of the therapists returning their questionnaires. Therapists needed frequent reminders to return their questionnaires. After speaking with a few of the timely and

delinquent therapists, it seemed that therapists who were better at organization were able to complete the questionnaires within the required time frame. They identified specific time management strategies they used to complete the questionnaires on time. Those therapists who admitted that they felt overworked or had too many other duties to complete were more delinquent. A note or phone call was initiated to increase the return rate. A few therapists did not return questionnaires at all. For the full study, a plan to improve the return rate and timeliness was planned. This included offering incentives, initiating other types of reminders, and varying the location of collecting data from patients. For example, therapists were assigned to specific locations in the hospital to treat certain patients. By moving from one location to another on a rotating basis to collect patient data, therapists would not be overloaded with questionnaires for patients all located in the same part of the hospital.

Therapist Questionnaires were coded alphabetically and numerically. Each therapist was assigned a letter. The number of the patient on which the Therapist Questionnaire was completed was also noted. For example, if Therapist "A" completed a Therapist Questionnaire on patients "10" and "15," then those Therapist Questionnaires were coded with "A10" and "A15," respectively. This coding scheme assisted in cross-referencing data without personal identifiers. This ensured confidentiality.

All questionnaires and interviews were stored in a locked file drawer for data analysis upon collection of data from all patient and corresponding therapist participants. Copies of the signed consent forms were provided to each patient and therapist participant per the requirements of the Institutional Review Board of the hospital.

Data Analyses for the Pilot Study

Factor Analysis of the GOPRQ

An exploratory factor analysis using principal components methods with a Varimax rotation was used to determine the response patterns of patients for each of the items on the GOPRQ. Since the GOPRQ was created based on five specific orientation patterns (i.e., mastery, performance-approach, performance-avoidance, work avoidance, and cooperation), a 5-factor solution was initially extracted. It was important to see if the items that were intended to correlate with a particular goal orientation actually did. Items with factor loadings of less than +/- .3 were considered not statistically significant. Table 1 presents the factor loadings for each item with only those loadings that were statistically significant listed.

Items targeting the performance goal orientations (i.e., performance-avoidance and performance-approach) strongly loaded together on Component 2, as did the items for cooperation which loaded together on Component 1. Work Avoidance items loaded significantly across two components (i.e., Components 3 and 4). It was interesting to see that mastery items loaded significantly negatively on component 3 which indicated that it was measuring an opposing concept. This would be expected for the mastery and work avoidance goal orientations.

Mastery items loaded significantly positively for Components 1 and 2 and significantly negatively for Components 3 and 5. The mastery items seemed to have the most dichotomous loading patterns with some items loading significantly positively on some components and significantly negatively on others. This can suggest that those items may have had discriminative ability that other items in the questionnaire did not

illustrate. All of the items had at least one statistically significant score for at least one component. In addition, items that were intended to measure a particular goal orientation loaded on the same components in general. This suggested that all of the items contributed statistically significantly (however small) to the measurement of goal orientations. At this point, no specific item on the GOPRQ was eliminated before use for the full study.

Table 1

Significant Factor Loadings by Item for Pilot Study

Factor Items (In rehabilitation, I feel really successful when…)	Component				
	1	2	3	4	5
Mastery					
7. I see myself getting better	**.527**	**.**376			
10. I learn a new skill by trying hard	.536				-.**584**
12. I get a new idea about how things work	.**797**				-.403
16. I learn something useful		**.**323	-.**721**		
24. Something I learn makes me want to practice more		**.818**	-.321		
Performance-Avoid					
1. I am not the worst at a particular skill	.375	**.630**			
3. I don't look and feel like a child	.358	**.526**	.494		.362
14. I don't look bad in front of others		**.895**			
20. I do the therapy so my therapists don't think I'm unable to do anything					**.698**
21. I don't mess up during therapy		**.882**			
Performance-Approach					
2. I know more than other people who are like me		**.611**	.313		.335

Table 1 continued

8. Other patients mess up but I don't		.545		**.588**	
11. I'm the only one who know how to do something		**.532**		.338	
13. I feel like my therapist is happy with my progress	.510	**.590**			
17. I do better than my fellow patients		.336	.428	**.647**	-.371
Work Avoidance					
5. I can fool around and get away with it		**-.584**			.402
6. I don't have to try hard			**.451**		
9. I can get out of doing any therapy				**.874**	
19. I can get someone else to do something rather than do it myself			.564	**.610**	.460
25. I don't have anything tough to do			**.841**		
Cooperation					
4. I can help a new patient out by sharing what I've done	**.856**				.316
15. The other patients and I help each other figure things out	**.741**		-.331		
18. The other patients and I help each other improve	**.862**				
22. My therapist and I solve a problem together	**.771**				
23. The other patients and I help each other do our best	**.872**				

*The strongest loading scores are in bold type.

After examining each item with the 5-factor structure, it was important to see if this factor structure explained a significant amount of the variance for the pilot data. When examining the eigen values and scree plot for the initial solution, rather than

forcing a 5-factor structure, it was observed that a 7-factor solution would most likely capture the response patterns of the participants better than a 5-factor structure. This was due to the number of components with eigen values greater than 1 and a change in slope on the scree plot. A 7-factor solution explained 82% of the variance for these data. This finding suggested that there may be other patterns of goal orientations for persons receiving physical rehabilitation. Because the pilot sample was so small, it was not necessary to investigate an appropriate factor solution further. However, this analysis did provide some information of how a larger sample might respond on the GOPRQ that would indicate goal orientations.

Analysis of Patient Interview Questions

Interview questions for the pilot study were divided into two groups. The first group of questions concerned the administration of the questionnaire. These data were presented earlier when discussing the procedures of the pilot study. The second group of questions concerned patients' perceptions of their goals, motivations, and reactions to working with other patients, and their definitions of success. It was important to see if the selected questions revealed information about patients' beliefs about success.

It was also important to establish an initial coding scheme for analyses of the interview responses in the full study. Two readers were used for the pilot study for establishing coding initial themes from the patient interviews. For the full study, three readers were used to code the themes to establish internal consistency. It was important to verify the selected codes by having more than one person review the interview data and categorize them into themes. One coder was the primary investigator and the other coders were master's degree occupational therapy students who had some background in

rehabilitation but not so extensive that their perceptions of patient comments would be influenced by personal experiences in the rehabilitation field. The readers used for the pilot and full study, identified very similar themes in the responses for each question. The coders were instructed to categorize phrases provided by patients which contained exactly the same wording or reflected the same idea or belief. The coders were also instructed to tally the number of those responses within each category. Since the interview was fairly structured, patients often used the same wording to describe their beliefs which made categorizing the information easier. The structured format may have limited the variety of responses. The primary investigator made the final determination of themes to be used for the study after examining the common themes identified by all of the coders.

There was high agreement between coders for responses provided most often by patients for each question. For example, all of the coders identified "gaining independence" and "meeting goals" as themes for responses provided to the question: "How do you define success?" These themes were among most often reported for this particular question. The discussion of the interview responses in Chapter IV will focus on those responses and themes that were reported with the highest frequency by all patients participating in the interview. Responses that were given only once or twice were not included in the analysis of the data. Refer to Appendix F for a table providing sample patient responses and the codes assigned representing an integration of the themes found from all coders used for the full study. The initial themes presented below were used as a starting point in establishing the themes for responses for the full study.

All of the patient participants stated that they had personal goals for their rehabilitation and these goals pertained to returning to a prior level of function or independence. When asked if their personal goals were the same as their therapists' goals, 16 patients stated that their goals were "pretty much," "probably," and "I think" the same. Two patients did not think that their goals were the same as their therapists' goals and one person did not know whether they were the same or not because he had never asked. For the full study, answers given in the affirmative will be coded as "agreement in goals." Other codes to be used for the full study based on this pilot study are "disagreement in goals" and "don't know."

The next two questions attempted to uncover the cognitions behind the patients' behavior in rehabilitation. I wanted to find out what motivated the patients and what kinds of things they said to themselves to help them work toward their personal goals. In terms of what motivated this sample of patients for the pilot study, many responses were generated. The most frequently cited motivation was to "do what was needed to be done to get home" (5 responses). Other responses were: "gaining independence" (4 responses), "getting back to family" (3 responses), "getting well" (3 responses), and their "therapist being motivating" (2 responses). "Doing things I like," "pain reduction," and "doing things correctly" all received 1 response. It seemed that all of the patients were motivated to some degree by keeping up with the rehabilitation program that was designed with goals similar to their personal goals in mind and then leaving the hospital to return to family or prior life activities. These responses were used as themes for the initial coding of this question for the full study. Additional themes were expected to emerge with a larger sample so the themes were not limited to these for this particular question.

Several types of responses were given when asked about how the patients go about achieving their goals and what kinds of things they said to themselves or thought about when working toward these goals. The response provided the most was “do what they tell me to do” (6 responses). Other responses included: “think about things that I need to practice” (3 responses), “do more than they ask” (3 responses), “positive outlook” (2 responses), “try to be a better person” (2 responses), “no particular approach” (2 responses), “go very slowly” (1 response). These were the initial themes used for coding information obtained from this interview question for the full study. The most frequent statements seemed to correlate with performance and mastery orientations.

The next interview question was asked to obtain an idea of what patients thought about working with other patients, if that affected their motivation. Most of the patients (11) stated that they liked working with other patients in rehabilitation. Some of the reasons given were: “can help each other out,” “like talking to other people,” “we become like family,” “makes me laugh and feel joyful,” “you learn more,” and “provides a different view of things.” Three patients did not think it was necessary to work with others because “everyone is working on their own things with different emotions.” These patients felt that they were there to work on their own personal goals rather than help others. Three patients had not had the opportunity to work with other patients and one patient stated that he did not feel good working with others and did not provide an explanation. To summarize, the responses to this question fell into these broad categories: working with other patients was beneficial to the rehabilitation process, working with others was not beneficial to achieving personal rehabilitation goals, and undecided on the benefits of working with others due to not having the opportunity. These themes were

used initially to code the themes found with this interview question. It was expected that these themes would emerge with a larger sample in the full study.

The last interview question asked patients to define success in rehabilitation in their own words. Ten patients responded with gaining independence as their measure of success. Four patients stated that feeling like they were "growing and improving everyday" was their definition of success. Two patients stated that "feeling good about the process" was a sign of success in rehabilitation. Other responses included: having a "better understanding," "working at it and doing the best that you can," "achieving what the therapists have outlined," and "meeting weekly goals." These themes guided initial coding for the full study.

The interview questions proved to be valuable in this pilot study in terms of preparing for the full study. It was very helpful to hear the words the patients used to describe their thoughts and feelings as they participated in their rehabilitation programs.

Analysis of the Therapist Questionnaire

Therapists provided both quantitative and qualitative information on their questionnaires. Quantitative data (using a 9-point scale) measured the level of success their patients were achieving as well as their patients potential for future success. Patients were also asked to use a 9-point scale to rate their level of success at that particular point in their rehabilitation. A 9-point scale was also used to determine therapists' perceptions of how well their goals for their patients correlated with patients' personal goals. Qualitative data consisted of listing the factors that affected their patient's success and defining success in this particular setting. A total of 16 completed Therapist Questionnaires were received for the pilot study. Four questionnaires were not received.

There was no significant difference in how the level of patient success was viewed by the patient participant group and the therapist participant group (t = -2.76, SD = 1.47, p = .015 two-tailed, df =15). Therapists and patients perceived similar levels of patient success in the patient's rehabilitation at that point in the rehabilitation process. The correlation (r = .61) between the ratings of patient success from both the therapist and patient participants indicated that ratings were similar from each of these participant groups. When looking at the actual mean ratings for each participant group, it seemed that therapists rated patients slightly higher in success than the patients rated themselves (mean therapist rating = 7.13, SD = 1.31; mean patient rating = 6.11, SD = 1.83). This could be due to the fact that therapists were able to rely on their experience in working with people with disabilities and could place that patient's progress or success in a different perspective. Despite the slightly different therapists rating of patient success, the correlation and paired t-test indicated that the ratings from the therapists and patients were not statistically significantly different.

The analysis of the qualitative information provided by the therapists consisted of identifying the main themes or concepts that arose for each of the two open-ended questions. First, when listing the factors that affect success for their particular patients, the following words appeared most often: motivation (10 responses), degree of physical/mental involvement (7 responses), family support (6 responses), willingness to learn/do therapy (6 responses), positive attitude (4 responses), and level of pain (4 responses). These responses could be combined to make 3 general themes: positive attitude/motivation, family support, and degree of physical/mental involvement. These themes replicated what was found in the literature with regard to factors that affect

success and was used for coding therapists' responses to this item in the full study (Bradley et al., 1999; Clark & Smith, 1999**;** DeVivo, 1999; King, 1981; Roessler, 1980).

The second open-ended question for the therapists asked them to define success for their particular patient(s.) Three general themes emerged in the responses: meeting goals, improved function, and increased independence. This paralleled what the literature has shown in terms of how professionals define success and their use of goals to help document that success and was used for coding this item in the full study (e.g., Albrecht & Higgins, 1977; Elliott, Uswatte, Lewis, & Palmatier, 2000; Lawler et al., 1999; Ponte-Allan & Giles, 1999; Rockwood, 1994).

Discussion of the Pilot Study Results

The intent of the pilot study was to provide information that could guide and shape the full study. To answer the first question, dealing with the suitability of the patient questionnaire, it seemed that the GOPRQ could be completed by typical patients receiving rehabilitation. Even though there were some patients that preferred to have the questions read to them, they all understood the directions and were able to give responses that reflected their thoughts accurately.

The factor analysis of the GOPRQ helped to answer the second and third questions related to goal orientations. This analysis provided information about the items and their usefulness in determining goal orientations for this pilot sample that may be replicated in a larger sample. Items that related to the orientations of cooperation, performance-approach, and performance-avoid had significant loading scores that fell into a more distinct loading pattern. Items for the mastery and work avoidance orientations did not display a distinct loading pattern but did have dichotomous factor

loadings on two of the 5 components that were extracted in the 5-factor solution. It was determined that a larger sample might replicate the same loading pattern for the items on the questionnaire or provide more discriminative information regarding the questionnaire items.

The fourth question about patient success beliefs was answered by analyzing the patient interview data. The patient interviews proved to be a valuable tool to gain information about how patients thought about success. It provided the words or phrases that could be used to code the interview data for the full study. The interviews were given in a semi-structured format in that the original question was read from the prepared list of questions but additional explanation and probing questions for additional information were also asked. This method of gathering qualitative data was successful and was expected to augment the data analysis for the full study.

In answering the last question pertaining to therapists' judgments of their patients' success, therapists were able to provide statements of success that were statistically no different than what the patients thought about their own success. The 9-point scale that both the patient and the therapist completed seemed to be a reliable measure of how each group of participants perceived patient success.

The pilot study was a necessary part of the research process providing this researcher with valuable information about the administration and usefulness of the instruments in obtaining the needed information for data analysis. No significant changes to the research methods for the full study were warranted after completion of the pilot study. Minor changes included: providing an alternate wording for Item 20, providing the option of reading the questionnaire to the patients as needed, and providing an incentive

for therapists to return their questionnaires in a timely manner as well as rotating patient data collection from one unit to the next to reduce the number of questionnaires one therapist might receive.

Limitations became evident in the pilot study that needed to be considered for the full study. The first limitation was the fact that patients who were participating in a full rehabilitation program were usually exhausted at the end of the day and very busy during the day. The timing of the administration of the patient questionnaires needed to be considered carefully. This limited the number of opportunities to gather data. Another limitation was that some patients had not experienced treatment that occurred with other patients in a group type of setting due to various reasons. Answers on the GOPRQ that related to cooperation were not answered based on actual experience. Patients may have projected what they "would" have thought if they had the opportunity rather than what they actually did think when participating in group therapy.

A last limitation of the pilot study was the predominant age of the participants. The majority of the participants (95%) were over 35. This may have affected how the items on the questionnaire were construed. The GOPRQ was created based on instruments used with traditional college aged adults. This was an important area to assess in the full study.

Full Study

The full study was conducted in the same manner as the pilot study. However, a larger sample was used, incorporating the pilot sample, and planned procedures for data collection were altered as specified in the pilot study. Because these changes were made

in the course of the pilot study, it was decided that the pilot data could be included without jeopardizing the reliability and validity of the study data.

Participants

As in the pilot study, two groups of participants were included in the full study (i.e., patients and therapists). It was important to sample an in-patient rehabilitation population for the study because it is in this context where the process of achievement can readily be observed and strategies to improve achievement can be implemented. Many other contexts of health care involve very short intervals that make it very difficult to make use of any information that might relate to the facilitation of learning and achievement of goals.

Patient participants (n = 237) were recruited from the same mid-Atlantic, urban, acute in-patient rehabilitation hospital as the patients for the pilot study. Participants from the pilot study were included in the total number of patient participants for the full study. All of the patients met the inclusion criteria with FIM scores of greater than 5 on the cognitive subscales. Two participants' information was excluded from the study. One of these participants requested that she be removed from the study. Another participant did not complete the questionnaire correctly and the data were unusable.

Demographics for the patient participant sample are outlined in Table 2. Additional demographic information is reported in Tables 3 and 4 thatincludes : time since onset of the disability, time since admission to the rehabilitation hospital, marital status, employment status at the time of illness or disability, and description of the support available upon discharge from the rehabilitation hospital. In addition to the variables described in the pilot study, a few of the aforementioned variables represent

groups of information (i.e., age, severity of disability, time since admission, and time since onset of disability). These data were grouped for statistical analysis. For example, time from the onset of the illness or disability was organized into three groups (i.e., less than 1 week, between 1 week and one month, and greater than 1 month). Time since admission to the rehabilitation hospital was structured into three groups (i.e., less than 1 week, between 1 week and 2 weeks, and greater than 2 weeks). The grouping scheme for this demographic data was based on the average length of stay in acute in-patient rehabilitation hospitals which is from 1 to 4 weeks. Please refer to the pilot study results and discussion for an outline of the grouping procedure for severity of disability and age.

Lastly, data collected regarding the support availableafter discharge from the hospital were categorized to reflect the possible types of support that might be available (i.e., family, significant other, self, other). The grouping of disability status was explained with the pilot study (i.e., severe disability group, moderate disability group, and temporary disability group). However, Table 3 outlines the actual diagnoses that were used to categorize the disability status. Diagnoses listed as “other,” and which were included in the moderate disability category, included multiple sclerosis, hip fracture for an older patient, and generalized weakness. Diagnosis listed as “other,” and which were included in the temporary disability category, were fractures in younger people and surgical procedures expected to result in full recovery. This additional information assisted in determining those factors that related to success in rehabilitation for study participants.

Table 2

Demographics of the Patient Participant Sample (n = 237)

Group Sub-Group	Variable Frequency	 % of Sample
Gender		
Male	94	40
Female	143	60
Age Category		
Young Adult (18 – 34 yrs.)	15	6
Middle Adult (35 – 60 yrs.)	88	37
Senior Adult (over 60 yrs.)	134	57
Disability Category		
Severe	19	8
Moderate	51	22
Temporary	167	71
Race/Ethnicity		
Black/African American	142	60
White/Caucasian	83	35
Hispanic	4	2
Other	8	3
Marital Status		
Single	64	27
Married	83	35
Divorced	36	15
Widowed	43	18
Separated	11	5

Table 2 continued

Employment Status		
Full-time	58	25
Part-time	19	8
Not Employed	46	19
Retired	114	48
Support Available		
Family	169	71
Significant Other	11	5
Self	41	17
Other (e.g., paid attendant)	16	7

Therapist participants (n = 21) were recruited at the time of the pilot study, via inservice presentation, with all but 3 of the therapists being female. All therapists participating had at least 1 year of experience as an occupational therapist. All of the therapist participants read signed consent to participate forms. Occupational therapists were chosen for the therapist sample because they receive training in teaching techniques in their academic programs. Occupational therapy philosophy embodies the beliefs that individuals seek to master their environment, engage in activities they find meaningful, and learn by doing (Baum & Christiansen, 1997)**.** Because of beliefs that ground the profession of occupational therapy, this group of rehabilitation professionals is most likely to find the study interesting and willing to participate, as compared with other rehabilitation professionals who do not receive as much training in the teaching/learning process. Occupational therapists (OT) would also be more likely to consider the findings and relate them to their daily practice.

Table 3

Specific Diagnostic Information – Frequencies Reported

Diagnosis	Level of Disability Group		
	Severe Disability	Moderate Disability	Temporary Disability
Spinal Cord Injury	17	4	3
Laminectomy	1	3	31
Joint Replacement			52
Stroke		10	1
Femoral By-Pass			4
Cardiac By-Pass			38
Other	1	34	38

Measures

All participants were asked to complete a consent to participate form and a questionnaire. All patient participants completed a demographic data sheet (see Appendix D) providing background information. A small portion of the patient sample was asked to answer interview questions. (See Appendix E for copies of the consent forms). The following sections explain the four measures used in the full study.

Demographic Data

All of the patient participants were asked to provide demographic data either before or after they completed the questionnaire (i.e., GOPRQ). The demographic data included name, date, diagnosis, hospital admission date, age, sex, race, employment status prior to their admission to the hospital, onset date of their disability, marital status, and a short statement about the support available from significant others. (See Appendix

D for a copy of the demographic data sheet). Patients were reminded that the information provided on the demographic data sheet would be kept confidential and that their responses on the data sheet, as well as the questionnaire, would be coded with a number. No identifying information was publicized. This information was useful in exploring relations between background factors and goal orientations. A summary of the demographics of the sample was provided in the previous section and is presented in Tables 2, 3, and 4.

Table 4

Demographic Frequencies Reported by Length of Disability and Length of Admission

	Length of Time Since Disability						Length of Time Since Admission					
Group Sub-Group	Recent (less than 1 week)		Moderate (1 week to 1 month)		Past (1 month or longer)		Recent (up to 1 week)		Moderate (1 – 2 weeks)		Past (2 weeks or more)	
	f	%*	*f*	%*	*F*	%*	*f*	%*	*F*	%*	*f*	%*
Gender												
Male	2	2	66	70	26	28	40	43	41	44	13	14
Female	7	5	106	74	30	21	69	48	58	41	16	11
Age												
Young			9	60	6	40	5	33	9	60	1	7
Middle			62	70	26	30	38	43	33	38	17	19
Senior	9	7	101	75	24	18	66	49	57	43	11	8
Disability												
Severe	1	5	5	26	13	68	5	26	7	37	7	37
Mod.	1	2	33	64	17	33	18	35	22	43	11	22
Temp.	7	4	134	80	26	16	86	52	70	42	11	7

*Percentage of occurrence within variable category

Goal Orientation in Physical Rehabilitation Questionnaire

The Motivational Orientation Scale (MOS) developed by Nicholls (1989) and the Task and Ego Orientation in Sport Questionnaire (TEOSQ) developed by Duda and Nicholls (1992) provided the basis for the GOPRQ. Because the performance-approach and performance-avoidance orientations were not included in these scales, a third scale recently developed by Murphy et al. (2002) that incorporated those orientations was used to create items specifically targeting these two goal orientation patterns. All three sources assisted in creating a goal orientation questionnaire that could be used with the disabled population receiving rehabilitation. As Carr and Weigand (2002) and Vandewalle (1997) noted, it is important to develop and use scales that are specific to the population being studied.

The GOPRQ was formatted in a similar manner as the MOS and TEOSQ. All items had the stem: "I feel most successful in rehabilitation…" The statements that completed this stem applied to the typical rehabilitation activities and outcomes that demonstrate achievement in rehabilitation settings. For example, since patients participate in individual and group sessions, some of the items referred to comparing their abilities with others (e.g., "I feel most successful in rehabilitation when I do better than my fellow patients,") and some items referred to what might occur if working one on one with their therapists (e.g., "I feel most successful in rehabilitation when my therapist and I solve a problem together.") Since patients were learning new skills, some of the items addressed this aspect of achievement (e.g., "I feel most successful in rehabilitation when I learn how to do something useful.")

In addition to reflecting the typical rehabilitation activities and outcomes, the GOPRQ contained items that related to mastery orientation, performance-approach orientation, performance-avoidance orientation, work avoidance orientation, and cooperation orientation. Twenty-five items were included on the questionnaire with 5 items targeting each of the five orientation patterns. Items for the mastery, work avoidance, and cooperation orientations were influenced by the work of Nicholls and Duda (1992). The cooperation orientation was included in the GOPRQ as a goal orientation. However, the literature discusses cooperation as a work orientation. In fact, Nicholls uses cooperation as a work orientation that reflects a pattern of behavior which can influence success rather than an orientation that influences beliefs about ability and skill. The performance-approach and performance-avoidance orientations were influenced by the Murphy et al. (2002) scale. Items created for each of the above orientations are provided in Table 5. An attempt was made to word the items according the manner in which each orientation pattern was described in the literature. For example, mastery orientation items reference the self rather than comparing the self with others. Likewise, the performance orientation items involved comparisons with other patients or therapist perceptions.

A 5-point Likert scale, as was used with the MOS and TEOSQ, was used with the GOPRQ. Participants indicated the level to which they agreed or disagreed with statements by placing an X or another kind of mark in the boxes that corresponded to their answers. The GOPRQ was formatted with a 14-point font and ample space in each box to allow for vision and writing coordination differences among the patient participants.

The determination of goal orientations was based on the degree to which the patients' responses loaded on a particular factor after a factor analysis had been performed. The term "load" is used in factor analysis to refer to the correlation and/or a particular pattern of responses for items on a measure that are then related to a particular latent factor, or underlying phenomena. For example, patients who agreed with statements that were identified as mastery oriented more so than statements that were work avoidance oriented, were determined to have a mastery orientation. These patients would have responses that loaded positively on the items pertaining to mastery orientation more so than other orientations. Patients who equally agreed with statements for two or three orientations were determined to have a combination of goal orientations. Rather than examining individual goal orientations, this study sought to determine the general pattern of goal orientations among a sample of patients, as well as goal orientations among groups within the patient sample. Factor analysis was the chosen statistical method used to identify goal orientations in the prior studies mentioned in education and sport literature.

One purpose of the full study was to establish the reliability and validity of the GOPRQ to identify goal orientations. Specific statistical analyses used to validate this measure are described in Chapter IV. Since the GOPRQ was developed based on past goal orientation scales that were shown to be reliable and valid, it was predicted that the GOPRQ would demonstrate similar reliability and validity patterns with a single sample.

Table 5

GOPRQ Items Grouped by Orientation

Orientation	Questionnaire Item in Response to the Stem: "I feel most successful in rehabilitation when…"
Mastery	I see myself getting better
	I learn a new skill by trying hard
	I get a new idea about how things work
	I learn something useful
	Something I learn makes me want to practice more
Performance-Approach	I know more than other people who are like me
	Other patients mess up but I don't
	I'm the only one who knows how to do something
	I feel like my therapist is happy with my progress
	I do better than my fellow patients
Performance-Avoidance	I am not the worst at a particular skill
	I don't feel like a child
	I don't look bad in front of others
	I do the therapy so my therapists don't think I am unable to do anything
	I don't mess up during therapy
Cooperation	I can help a new patient out by sharing what I have done
	My therapist and I solve a problem together
	The other patients and I help each other figure things out
	The other patients and I help each other do our best
	The other patients and I help each other improve
Work Avoidance	I can fool around and get away with it
	I don't have to try hard
	I can get out of doing any therapy
	I can get someone else to do something for me rather than do it myself
	I don't have anything tough to do

Interview Questions

Interview questions used for the patient interviews (see Appendix C) gathered qualitative information related to goal orientations and motivation that might not have been reflected in the GOPRQ. Examples of questions targeting goal orientations were:

- How would you describe the way you go about achieving your personal goals for your rehabilitation?
- In relation to your personal goals, what motivates you to participate in your rehabilitation sessions?
- How would you define success in your rehabilitation?"

These questions provided information about patients' goal orientations and success in an open-ended format, allowing the patient participant to add information that would not be possible with a questionnaire. In doing this, the researcher was able to see if the patient a) understood the items; b) reported thoughts consistently; and, c) had any other information about how he/she felt successful in rehabilitation.

Therapist Questionnaire

Each therapist with a patient participating in the full study completed the Therapist Questionnaire for each of his or her patients in the study. Feedback from a small focus group of occupational therapists were obtained to assist in creating this 4-item questionnaire in which the therapists responded on a 9-point scale for three of the four questions. Open-ended responses were solicited with one question and part of another question. Therapists answered questions related to the progress and success they felt their patient attained in rehabilitation to date. An example of a question that referred to patient success was: "How would you rate your patient's potential for future success in his or her rehabilitation?" (Refer to Appendix B for a sample of the Therapist Questionnaire.) These questions also provided information about the factors that related to success in rehabilitation from the therapist's point of view.

One question on the Therapist Questionnaire was directly parallel to a question at the end of the GOPRQ. Therapists answered the question, "Do you feel this patient is achieving success at this particular point in his or her rehabilitation?" using the 9-point scale with 1 indicating no success and 9 indicating much success. Patients answered a parallel question, "Do you feel successful at this particular point in your rehabilitation?" using the same 9-point scale to represent their answer. A direct comparison of perceptions of success between therapists and patients was made with these questions and will be discussed in Chapter IV.

Procedures

Procedures for the full study contained very little variation from those outlined in the pilot study. A summary of those alterations are provided herein. Patient participants who were unable to write their responses on the demographic data form or the GOPRQ were given writing assistance by this investigator. Patient interviews for the full study did not include the questions related to administration procedures. However, all of the questions related to goals and motivation were included in the patient interviews.

The purpose of the patient interviews was to include an opportunity in the study to collect data related to goals and motivation which allowed patients to use their own words rather than select a number from a scale. It was very useful to hear patients describe their thoughts related to these constructs as it aided in more fully describing the resulting goal orientations gleaned from the quantitative analysis of the GOPRQ. Selected patients (i.e., every 10^{th} patient) were interviewed for the full study. Some patients did not want to participate in the interview. When this occurred, the next patient (e.g., the 11^{th} patient) was asked to participate in the interview. There were 7 out of 20 instances

where a patient declined the interview and the next patient was asked to participate in the interview instead. It was observed that many of the patients who declined the interview portion of the study may have felt the information they provided would be connected to them easier than the quantitative information on the GOPRQ. The anonymity of the interview responses seemed to be an issue with those patients who declined the interview.

The interviews in the full study occurred after patients completed the GOPRQ and were digitally recorded to assist with accuracy in transcribing the responses. Two patients did not want their interview responses recorded. Their responses were handwritten by the investigator and read back to the patient for accuracy. Each patient in the pilot study, except one, agreed to complete both the interview and questionnaire. One patient declined participation in the interview. Thus, a total of 39 patients were interviewed. Demographics of patients participating in the interviews are presented in Table 6.

As a result of the therapist participation in the pilot study, an incentive was provided in the full study to improve the return rate and timeliness, along with use of written and verbal reminders. In addition, an effort was made to recruit patient participants from different units of the hospital on a rotating basis, thereby targeting a different group of therapists each week. This was expected to reduce the number of questionnaires therapists receive at one time. Despite these attempts to improve the response rate and timeliness from the therapists for the full study, there were several instances of tardiness and non-reporting from the therapists. Because of this occurrence, additional data from patients and their respective therapists were collected in order to obtain the projected number (i.e., 200) of paired data (i.e., therapists and patients responses for the item related to patient success in rehabilitation) required for statistical

purposes for the study when patient and therapist responses needed to be compared. None of the therapists reported having any difficulty with the items on the questionnaire. A total of 200 therapist questionnaires (this includes 16 from the pilot study) were obtained for the full study. Therefore, all of the data where therapist and patient responses were compared consisted of 200 paired sets of data. These 200 patients and the remaining 37 patient data from the GOPRQ were only used for the factor analysis of goal orientations for the total sample of 237 patients.

Table 6

Demographics of Patients Participating in the Interview (n = 39)

Group Sub-Group	Frequency	Percentage
Age		
Senior Adult	17	46
Middle Adult	17	46
Young Adult	5	13
Gender		
Male	15	38
Female	29	74
Race		
Black/African-American	24	62
White/Caucasian	14	36
Other	1	2
Diagnosis		
Severe	7	18
Moderate	5	13
Temporary	27	69
Total	39	100

All information obtained during the study was stored in a locked office upon collection and entering into the computer. Patients and therapists were thanked for their participation and asked if they wanted a report of the results upon its completion. Approximately 7 patients and most therapists were interested in the outcomes of the study. These individuals were asked to provide contact information or a mailing address to which a summary of the results could be sent. All of the patients participating in the study were discharged at the time the study was completed.

CHAPTER IV

RESULTS

In this chapter, results of the data analyses from the study of goal orientations in physical rehabilitation will be presented. These analyses pertain to the following research questions:

- What goal orientation patterns exist in physical rehabilitation?
- What is the relation between goal orientation and success in rehabilitation?
- How is success defined and measured in physical rehabilitation?
- What factors are involved in rehabilitation success?
- How is the definition of success different for people receiving rehabilitation than for those providing the services?

The presentation of the results will be organized according to each research question. Analyses related to the GOPRQ and goal orientations will be presented first. This will be followed by analyses concerned with questions pertaining to the definition and measurement of rehabilitation success from both patients' and therapists' points of view.

Goal Orientations in Physical Rehabilitation

The first research question in this study explored the identification of goal orientations among patients receiving in-patient physical rehabilitation via quantitative and qualitative methods. Factor analysis was the primary quantitative method used to test the underlying structure of the GOPRQ in order to determine patient goal orientations. Interview questions were used as a qualitative measure of goal orientation and motivation

for the patient sample. Statements made by patients were examined to provide additional information when explaining the factor structure obtained via the factor analysis.

Factor Analysis of the GOPRQ

An exploratory factor analysis of the GOPRQ was conducted using principal components methods with SPSS Version 11. Since this was a new instrument being used with a new group of participants who demonstrated substantially different demographics than individuals examined in prior studies in education and sport, principle components methods were chosen to conduct an exploratory, rather than a confirmatory factor analysis. A confirmatory factor analysis is conducted with data when there is more certainty of the underlying phenomena. That is, the factors are already known to a high level of certainty and the confirmatory factor analysis provides additional evidence for those factors. Despite the fact that the GOPRQ was created with 5 specific goal or work orientations in mind, these may not be the actual goal orientations that emerge with this sample of patient participants. The goal orientations that emerged with this sample may have been influenced in large part by the age of the participants, a majority being 60 years of age and older. In addition to age, the participants in the current study contained enough substantially different qualities from prior studies that an initial exploration was indicated via principle components methods. An exploratory factor analysis was indicated to explore the kinds of goal orientations that emerged with this sample of patients. Once these data are analyzed and changes made to this instrument, a new study using the revised instrument would indicate use of a confirmatory factor analysis.

In addition to the factor analysis, I also examined the reliability of the resulting factors, the correlations among those factors and the correlation among items in the

GOPRQ. The factor analysis was expected to uncover the patterns of motivation or goal orientations that were present in this sample of patients receiving physical rehabilitation. Factor analysis is typically the chosen statistical method used to extract or identify underlying phenomena that are present with groups of variables that are related. In this case, the variables that were related were the goal or work orientations which correlated with the pattern of responses the patients provided on the GOPRQ and the underlying phenomena are the patients' beliefs about achievement and motivation in this setting.

The relations between patients' responses on the GOPRQ to these underlying phenomena are illustrated in a factor analysis by the factor loading. This loading depicts the correlation between the factor (i.e., goal orientation) and the variable (i.e., responses for each item on the GOPRQ.) A Varimax rotation was used first to maximize the variance of the factor loadings and to help identify the number of factors to extract from the data. This type of rotation normalizes the loadings to make them orthogonal. This helped to display the data in a manner which aided interpretation for decisions regarding extraction of factors. Once the number of factors was determined, the data were then submitted to a factor analysis with a Direct Oblimin (oblique) rotation extracting 6-factors. Since the factors were expected to be related to each other, an oblique rotation would help in actually naming the underlying phenomena or goal orientations. Oblique rotations are used when the data explain overlapping aspects of the variability in the sample and this method accounts for this overlap. Variables are not forced into orthogonality as is done with a Varimax rotation.

The structure of the GOPRQ was not modified based on the preliminary factor analysis with the pilot data. In the pilot study, each item on the questionnaire

demonstrated a significant factor loading of a least +/- .3 for at least one component in the 5-factor structure. This indicated that there was a statistically significant relation between the pattern of pilot patient responses for each item on the questionnaire and the latent factors (components) that were uncovered in the factor analysis. Each item demonstrated a significant correlation, identified by the factor loading, with at least one component identified in the factor analysis of the pilot study.

Factor Solution

Before looking at a factor structure for the full sample, it was important to be sure that the sample size and variability of the responses in the sample would be powerful enough for study via factor analysis. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was statistically significant (*KMO* = .84). This statistic served as a measure of the strength of the relations among the variables. A KMO of .84 is considered meritorious (Kim & Mueller, 1978). This supported the use of factor analysis as an appropriate statistical method for analyzing the data. Bartlett's Test of Sphericity was used to determine the variability of the data. It was important to have some variability in the data for analysis via factor analysis rather than have the data all perfectly related.

When Bartlett's Test of Sphericity is significant, it means that there are some non-zero relations among the data (Kim & Mueller, 1978). The size of the sample and the number of variables can affect this measure. Therefore, in order to produce a significant Bartlett's Test of Sphericity, it was important to have a large sample to compliment the large number of variables in the current study. In this case, the chi-square statistic is statistically significant at 1921.63 as it is substantially higher than the test statistic of 59.703 [$\chi 2($300, n = 237) = 1921.63, p = .000]. The results from the Kaiser-Meyer-Olkin

and Bartlett's Test of Sphericity indicate that the patient sample for the current study was large enough to provide statistically significant results and the data were related but still contained an appropriate amount of variability to warrant analysis via factor analysis methods.

For the study, rather than force a 5-factor solution as was done in the pilot study, it was important to see what kind of factor structure would be produced if factors were extracted solely based on the Kaiser Criterion (i.e., eigen values greater than 1; Kim & Mueller, 1978) and after examination of the scree plot. When a Varimax rotation was applied, a 6-factor structure emerged. Six factors had eigen values of at least 1 and the slope of the scree plot dropped off at about the sixth component. These 6 factors captured 57% of the variance for this sample. A little more than half of all the patients' responses on the GOPRQ were related to the goal orientations identified. This means that 43% of the variance in responses related to goal orientations was explained by other variables not included in the GOPRQ. This finding must be kept in mind when going forward with additional analyses and drawing any final conclusions. Any factor structure or implications resulting from this study will only apply to 57% of the variance for this sample. Stronger conclusions related to the factor structure would be possible if the variance captured with this sample was at least 75%.

After extracting those factors or components (please note that the terms "factor" and "component" are used interchangeably) with eigen values greater than one, the next step was to evaluate the loading scores for the strength of the correlation between factors and response patterns for each item. In conducting this evaluation, several statistical principles were used. A determination of which data were significant to examine was

made first. Factor loadings from the rotated component matrix that were at least +/- .3 were considered statistically significant as these scores represented a stronger correlation between the factor and variable. According to Kim and Mueller (1978), factor loadings less than +/- .3 are considered not substantial. Only these scores were examined with greater detail. Table 7 displays the factor loadings for each factor via Varimax rotation with those that are significant according to the above criteria bolded. Varimax rotation forces the components to be orthogonal. However, as will be discussed later, the components are related so that an oblique rotation may provide more useful information in interpreting the components.

All of the significant loadings were considered in an initial examination of these data, regardless of whether items loaded significantly on more than one component. Special attention was given to those items which loaded on more than one component. Theoretically, items should only load highly on one component in order to be considered an item that provided significant data for the study. However, in this initial examination, I wanted to see how items loaded on particular components to see if patterns of goal orientations emerged that were different from those on which the questionnaire was based. Realizing that additional analyses would be indicated to obtain a clearer factor structure, it was helpful to see that certain items did not load together on the same component as was expected.

If only the significant factor loadings for each component as shown in Table 7 were considered, the following structure and suggested names for the components were depicted related to goal orientations after completing the statement, “I feel really successful when”:

Table 7

Factor Loadings for Selected Items from GOPRQ after Varimax Rotation

Item	Component					
	1	2	3	4	5	6
1. I am not the worst at a particular skill	.094	**.726**	-.061	.238	-.084	-.181
2. I know more than other people who are like me.	.123	**.606**	-.052	**.350**	.031	.034
3. I don't look and feel like a child	.029	**.720**	.282	-.153	.066	-.226
4. I can help a new patient out by sharing what I've done	**.781**	.131	.190	.110	-.021	-.099
5. I can fool around and get away with it	-.068	.055	-.062	.045	**.550**	-.083
6. I don't have to try hard	-.267	-.004	.165	.205	**.560**	-.166
7. I see myself getting better	.204	-.070	**.613**	.051	-.171	.175
8. Other patients mess up but I don't	.011	.138	-.138	**.697**	.170	-.003
9. I can get out of doing any therapy	-.055	-.108	-.162	**.350**	**.574**	-.069
10. I learn a new skill by trying hard	.259	-.098	**.580**	-.047	-.288	.172
11. I'm the only one who know how to do something	-.172	.161	.194	**.705**	.091	.033
12. I get a new idea about how things work	.267	.067	**.682**	.047	.005	-.110
13. I feel like my therapist is happy with my progress.	.135	**.**300	**.600**	.107	-.004	.103
14. I don't look bad in front of others	.046	**.664**	.055	.282	.106	.248
15. The other patients and I help each other figure things out	**.835**	.065	.184	-.018	-.013	.165
16. I learn something useful.	.245	.032	**.477**	-.125	-.090	**.534**
17. I do better than my fellow patients	.120	.284	.077	**.669**	.141	.011
18. The other patients and I help each other improve.	**.790**	-.042	**.304**	-.031	-.123	.193

Table 7 continued

19. I can get someone else to do something for me rather than do it myself.	.046	.059	-.209	**.328**	**.562**	-.256
20. I do the therapy so my therapists don't think I am unable to do anything	.041	.113	-.152	-.096	**.676**	.185
21. I don't mess up during therapy.	-.099	**.641**	.057	.080	.181	**.399**
22. My therapist and I solve a problem together.	**.387**	.099	**.458**	-.276	-.120	.094
23. The other patients and I help each other do our best.	**.801**	.025	.242	-.057	-.086	.115
24. Something I learn makes me want to practice more.	.267	.081	.155	.124	-.233	**.707**
25. I don't have anything tough to do.	-.041	.214	-.058	**.334**	**.424**	**-.383**

Note: Bolded loadings are significant for the indicated component.

- Component 1 – "Working with others": all 5 cooperation orientation items had significant loadings
- Component 2 – "Doing things correctly": 4 performance-avoid items and 2 performance-approach items had significant loadings
- Component 3 – "Working on own goals and doing better than others": 4 mastery items, 2 cooperation items, and 1 performance-approach item had significant loadings
- Component 4 – "Doing only what's needed to do things correctly and do better than others": 4 performance-approach and 3 work avoidance items had significant loadings
- Component 5 – "Doing as little as possible but not worse than others": all of the work avoidance items and 1 performance-avoid item had significant loadings

- Component 6 – "Working on own goals without looking worse than others": 2 mastery items, 1 performance-avoid, and 1 negative relationship with work avoidance had significant loadings.

These underlying phenomena are plausible for the sample in this study as patients have many opportunities to work individually on their own goals as well as with others and compare their achievements. However, a better illustration of the goal orientations for this sample may be obtained with a more detailed examination of the factor loadings with additional analyses.

Because the components were expected to be related, explaining overlapping aspects of the data, an oblique rotation was then applied to the data when 6 components were extracted. This procedure simplified the structure of the component matrix producing factor loadings that were more clearly high or low. This was in keeping with Thurstone's criteria (Kim & Mueller, 1978) in terms of seeking the simplest factor structure. A more accurate display of the data was provided with the oblique rotation for interpretation through the pattern matrix which contains factor loadings. Table 8 illustrates the loadings of the factor analysis with an oblique rotation.

Interestingly, a new component seems to have emerged in Component 3 that was not depicted with the Varimax rotation. This component contained items related to mastery and performance-avoid that had negative factor loadings. So this component seemed to pertain to some aspect of goal orientations that was opposite of a mastery or performance-avoid orientation. The oblique rotation also provided loadings that were more distinctly high or low. This is an important aspect of rotating data to improve interpretation.

Table 8

Factor Loadings after Direct Oblimin (oblique) Rotation

Item	Component					
	1	2	3	4	5	6
1. I am not the worst at a particular skill.	.089	**.739**	.168	.169	-.115	-.171
2. I know more than other people who are like me.	.118	**.568**	-.050	**.302**	-.105	-.029
3. I don't look and feel like a child.	-.021	**.763**	.223	-.259	.264	.045
4. I can help a new patient out by sharing what I've done.	**.810**	.089	.168	.095	.053	.006
5. I can fool around and get away with it.	**-.**028	.018	.077	-.009	**.**004	**.544**
6. I don't have to try hard.	-.261	-.059	.154	.159	**.**295	**.507**
7. I see myself getting better.	.117	-.119	**-.**144	.083	**.579**	-.128
8. Other patients mess up but I don't.	.046	.041	-.009	**.705**	-.119	.058
9. I can get out of doing any therapy.	.011	-.190	.063	**.329**	**-.**083	**.526**
10. I learn a new skill by trying hard.	.173	-.126	**-.**136	-.008	**.523**	-.229
11. I'm the only one who knows how to do something.	-.202	.059	-.054	**.719**	.251	-.027
12. I get a new idea about how things work.	.198	.029	**.**154	.034	**.669**	.014
13. I feel like my therapist is happy with my progress.	.046	.251	**-.**088	.084	**.578**	.009
14. I don't look bad in front of others.	**.**009	**.609**	-.276	.229	.007	.089
15. The other patients and I help each other figure things out.	**.852**	.011	-.098	-.018	.018	.083
16. I learn something useful.	.154	-.026	**-.519**	-.101	**.398**	**.**038
17. I do better than my fellow patients.	**.**124	.181	-.014	**.662**	.073	.044

Table 8 continued

18. The other patients and I help each other improve.	**.783**	-.096	**-.**124	-.011	.146	-.022
19. I can get someone else to do something for me rather than do it myself.	.129	.001	.260	**.**278	**-.**149	.**489**
20. I do the therapy so my therapists don't think I am unable to do anything.	.087	.059	-.194	-.162	**-.**126	.**744**
21. I don't mess up during therapy.	-.154	**.598**	-.**441**	.021	.028	**.**212
22. My therapist and I solve a problem together.	**.330**	.103	**-.**053	-.289	.**374**	-.029
23. The other patients and I help each other do our best.	**.808**	-.016	-.047	-.052	.083	.005
24. Something I learn makes me want to practice more.	.203	.001	**-.709**	.179	.035	-.131
25. I don't have anything tough to do.	.009	.181	**.383**	.272	.013	**.317**

Within each component identified in Table 8 in the oblique rotation, statistically significant loading scores (at least +/- .3) varied in their level of significance. Highly significant loading scores appeared more often for those items which only loaded significantly on one component. Higher factor loadings (i.e., greater than +/- .5) demonstrate a stronger relation between the item and the underlying phenomena. In addition, items which load significantly on more than one component illustrate inconsistency of an item to relate to a particular underlying phenomenon. Items 22 and 25 (cooperation and work avoidance items respectively) did not contain any loadings that were highly significant and they each loaded on more than one component. Four other items (i.e., 2, 9, 16, and 21) had significant loadings for more than one component with only one loading highly significant. They were from the following orientations

respectively: performance-approach, work avoidance, mastery, and performance-avoid. If these 6 items, which offer weak or ambiguous information related to goal orientations, were removed from the analysis, the following factor structure is illustrated:

- Component 1 – Cooperation: 4 highly significant items (i.e., 4, 15, 18, 23)
- Component 2 – Performance-avoid: 3 highly significant items (i.e., 1, 3, 14)
- Component 3 – "not seeking mastery": 1 highly significant item (i.e., 24)
- Component 4 – Performance-approach: 3 highly significant items (i.e., 8, 11, 17)
- Component 5 – Mastery: 3 highly significant mastery items (i.e. 7,10, 12) and 1 highly significant performance-approach item (i.e., 13)
- Component 6 – Avoidance: 2 highly significant work avoidance items (i.e., 5 and 6), 1 significant work avoidance item (i.e., 19) and 1 highly significant performance-avoid item (i.e., 20)

Each of the above components contains at least three statistically significant items that were intended to relate to each other. Two exceptions are for Components 5 and 6 which contain items that were not intended to load together but be somewhat related. Specifically, for Component 6, work avoidance and performance-avoid orientations each have an aspect of avoiding doing things towards success that either make the patient look bad (performance-avoid) or considered too much work (work avoidance). Likewise, in Component 5, mastery and performance-approach orientation each have an aspect of trying to do things well by learning or accomplishing a new task or skill.

It appeared that Components 2 and 6 each contain some aspect of avoidance. A closer evaluation of these two components was warranted. A distinction was made between Component 2 and Component 6. Component 2 and 6 contained performance-

avoid items. Since there were no work avoidance item in Component 2 and two in Component 6, these two components may be distinguished by a desire to actually participate in activities that could lead to success. The overall avoidance orientation found with Component 6 could possibly be related to lack of participation. Whereas, the performance-avoid orientation as found with Component 2 could possibly relate to more engagement in activities that lead to success, but only those that do not make the patient seem worse than other patients.

Other information to consider for this finding for Component 6 is the fact that the performance-avoid item that was highly significant was Item 20, which was problematic in the pilot study. In the examination of all of the statistically significant factor loadings (both highly and less highly significant) for this component, Item 20 was the only performance-avoid item included in Component 6. The rest of the significant loadings were work avoidance items. This supports the idea that Component 6 leans more toward a work avoidance or lack of participation than Component 2.

Component 3 is a finding that requires further examination. This component only contained one highly significant item negatively related to mastery orientation (i.e., Item 24 and.) This same item had a positive relation to mastery orientation in the Varimax rotation solution. A couple of actions or explanations could be provided for this finding related to Component 3. One could exclude this component since there is only one item that loads highly significantly. It could be considered an outlier especially since it provides inconsistent information with different statistical applications. There is no support from patient responses from other items to identify this component as an important underlying phenomenon. In addition, components with fewer than 3

significant factor loadings are not considered reliable. This component was excluded from additional discussion related to goal orientations.

Reliability and Component Correlation Analysis

Internal consistency or reliability was calculated via Cronbach alpha coefficients for each component (with the 6 items excluded) with the exception of Component 3 since there was only one highly significant loading. These are reported in Table 9 with the items and loadings grouped by component. Each component demonstrates a fairly significant reliability score which indicates that those items consistently relate to specific components or orientations. Component 1 demonstrates a particularly strong reliability score ($\alpha = .88$) in comparison to the other components.

Since Item 20 was problematic in the pilot study and since it was the only performance-avoid item in Component 6, a reliability analysis was performed with Item 20 excluded. The reliability score did not change with the omission of Item 20 ($\alpha = .52$). This finding indicates that this item does not add or take away information needed for Component 6 to be reliable in measuring that goal orientation. In revising the GOPRQ, this item would need to be dropped from the instrument as it has consistently proven to be problematic.

For the purposes of the current study, it appeared that the 5 goal or work orientation patterns identified in the literature for the domains of education and sport exist for the domain of physical rehabilitation (Duda & Nicholls, 1992; Nicholls, 1989). The components correspond to the following goal or work orientations respectfully: cooperation, performance-avoidance, performance-approach, mastery, and work avoidance. Component 3 would not be a viable component to consider seriously at this

point due to the fact that it contained substantially less significant factor loadings as compared to the other components that were extracted from the data.

The correlations between the identified components were obtained by examining the component correlation matrix. The strongest correlation was found between the cooperation orientation (Component 1) and the mastery orientation (Component 5; r = .325.) The next strongest correlation was between the work-avoidance orientation (Component 6) and performance-approach orientation (Component 4; r = .261). This particular correlation is surprising as these orientations represent two very different approaches to achievement. An explanation for this occurrence may be in the wording of the items. Some items may not have reflected the particular goal orientation as desired and so produced ambiguous data. Although positively correlated, the above correlations are rather low in general. Other correlations among the components were very low (i.e., r = -.042 to r = -.200) which suggest that the components are measuring distinctly different underlying phenomena. This finding supports the factor solution described in this section.

Item Analysis

It was important to analyze each item in the GOPRQ as they related to the factor analysis, but also as they related to each other. When examining the correlation matrix produced with the factor analysis for the 6-factor structure, the items that were meant to measure the same construct or goal orientation, did correlate with each other to a .01 level of significance. However, some of the correlations were not strong. Table 10 presents the correlations for the remaining highly significant items from the GOPRQ. In

Table 9

Six-Factor Structure using Factor Loadings from the Oblique Rotation

Item	Component					
	1	2	3	4	5	6
4. I can help a new patient out by sharing what I've done.	.810					
15. The other patients and I help each other figure things out.	.852					
18. The other patients and I help each other improve.	.783					
23. The other patients and I help each other do our best.	.808					
1. I am not the worst at a particular skill.		.739				
3. I don't look and feel like a child.		.763				
14. I don't look bad in front of others.		.609				
24. Something I learn makes me want to practice more.			-.709			
7. I see myself getting better.					.579	
10. I learn a new skill by trying hard.					.523	
12. I get a new idea about how things work.					.669	
13. I feel like my therapist is happy with my progress.					.578	
8. Other patients mess up but I don't.				.705		
11. I'm the only one who knows how to do something.				.719		
17. I do better than my fellow patients.				.662		
5. I can fool around and get away with it.						.544

Table 9 continued

6. I don't have to try hard.						.507
19. I can get someone else to do something for me rather than do it myself.						.489
20. I do the therapy so my therapists don't think I am unable to do anything.						.744
Reliability (α)	.88	.65	-	.67	.66	.52

addition, items written for a particular goal orientation correlated with items for other goal orientations in a predictable pattern.

For example, mastery items correlated significantly positively most often with cooperation items with the exception of one correlation between Items 3 and 12 *(r* = .217, *p* = .01). In this exception, a performance-avoid item correlated significantly positively with a mastery item, however the correlation was very low despite the .01 significance level. Cooperation items correlated significantly negatively with work avoidance items. The performance-avoid and performance-approach orientations tended to correlate positively as expected since they each were measuring some aspect of performance orientations. Mastery items correlated significantly negatively with work avoidance items as was expected since these were two opposing goal orientations. One interesting finding from the examination of the inter-item correlations was that Item 6 (work avoidance item) correlated positively with performance-approach items (i.e., Item 8 and 11). This suggests that perhaps either the wording of the item or the way that Item 8 and 11 were construed implied a performance-avoid orientation rather than a performance-approach as was intended. These items warrant further examination before use in another study.

The prior item analyses suggest that the questionnaire could be shortened to only include those items that either had high inter-item correlation, produced a significant pattern of response on a specific component as indicated by high loading scores, or significantly added to the reliability of the items to measure the targeted goal orientation. The selected items may provide the most information related to goal orientations whereas the other items may not add any additional information. To test this hypothesis further, another study would be indicated, using only the selected items to identify the goal orientations among persons with physical disability receiving in-patient rehabilitation.

Goal Orientations for the Patient Sample

After identifying the items on the GOPRQ that contributed significantly to the assessment of goal orientations and finding that there were essentially 5 goal orientations (excluding Component 3) for this sample of patients receiving in-patient rehabilitation, it was important to identify the actual frequency and percentage of the sample that possessed a high score for a particular goal orientation. This information was obtained by taking the mean score from the selected items within each goal orientation. For example, for the performance-avoid orientation, since only Items 1, 3, and 14 were found to be significant in measuring this component, the ratings per patient (i.e., 5 – 1 on the Likert Scale) for only these items were averaged to get a total score for cooperation orientation. The same was done for each of the goal orientations and for the entire patient participant sample. In the end, each patient participant had a score for each of the goal orientations. The higher the score, the more likely that orientation was the primary goal orientation for a particular patient since the agreement scale used in the GOPRQ identified “5” as indicating strong agreement with the statement. No individual goal orientation score was

higher than 5 since the mean scores were used. Three of the 5 goal orientations received the most "high mean" scores. They were cooperation, performance-avoid, and mastery orientations. These three orientations were examined more closely.

A large percentage (i.e., 57%) of the sample had equally high scores on two or even three goal orientations. Multiple goal orientations were shown to exist in the education and sport literature as individuals sometimes used a different orientation depending on the particular achievement situation (Duda, 1989; Pintrich, 2000; Steinberg, Singer, & Murphey, 2000). The most frequent combination of orientations for this sample of persons receiving physical rehabilitation was between cooperation and mastery. The next most frequent combination was between cooperation, mastery, and performance-avoidance. In the cases where there was only one goal orientation with the highest score, that orientation was most often the mastery orientation. The cooperation orientation was the most frequently occurring goal orientation but was almost always paired with another equally high goal orientation. This seems to suggest that cooperation is an underlying goal construct that is significant for achievement in this sample of patients receiving rehabilitation.

Another consideration related to the cooperation orientation is that the inclusion of this particular work orientation in the study along with the other goal orientations may have influenced the results of the factor analysis. Nichols and Duda (Nichols,1989; Duda & Nicholls, 1992) included this work orientation in their studies. However these researchers did not separate the performance goal orientation into the performance-avoid and performance-approach. Likewise, those researchers (e.g., Pintrich, 2000) who specifically studied performance-avoid and the performance-approach goal orientations

Table 10 *Correlation Matrix for Selected Items from the GOPRQ*

Item	1	3	4	5	6	7	8	10	11	12	13	14	15	17	18	19	20	23
1	1																	
3	**.391****	1																
4	.163*	.159*	1															
5	.024	.021	-.069	1														
6	.017	.054	-.121	**.283****	1													
7	-.053	.083	**.298****	-.162*	**-.191****	1												
8	**.241****	.054	.034	.143*	**.204****	-.119	1											
10	-.051	.088	**.314****	**-.198****	**-.212****	**.461****	-.137*	1										
11	**.247****	.069	.026	.139*	**.212****	.011	**.375****	-.044	1									
12	.039	**.217****	**.342****	-.067	-.020	**.336****	-.014	**.287****	.104	1								
13	**.233****	**.250****	**.238****	-.109	.043	**.299****	.059	**.310****	.149*	**.328****	1							
14	**.360****	**.387****	.190*	.095	.078	.033	**.259****	-.058	**.257****	.151*	.302**	1						
15	.065	.115	**.620****	-.081	**-.171****	**.284****	.001	**.328****	-.091	**.301****	**.281****	.130*	1					
17	**.316****	.128*	.162*	.125	.140*	.044	**.391****	-.061	**.437****	.108	**.221****	**.359****	.119	1				
18	**-.**011	.051	.568**	-.147*	**-.192****	**.349****	**-.**109	**.428****	-.070	**.397****	**.308****	**.**073	**.728****	.026	1			
19	**.**148*	.061	.040	**.210****	**.307****	-.154*	**.318****	**-.294****	**.176****	-.095	-.104	**.**123	-.119	**.276****	**-.199****	1		
20	.065	.016	.002	.164*	.101	-.111	.123	-.158	.069	-.071	.009	.055	-.037	.110	-.116	**.303****	1	
23	.030	.080	**.549****	-.117	**-.196****	**.317****	-.085	**.335****	-.085	**.336****	**.306****	.048	**.657****	.086	**.740****	-.145*	-.066	1

**Significant to p = .01 (two-tailed), *Significant to p = .05 (two-tailed)

did not include the cooperation orientation. If the cooperation items were excluded from the study, different patterns of goal orientations for this sample could emerge. This study deviated from past research on goal orientations by including the cooperation orientation and separating the performance orientation into performance-avoid and performance-approach orientations in the same study.

Since cooperation proved to be a significant factor in this study, another study to examine the effects of cooperation on goal orientations is indicated for persons receiving physical rehabilitation in a similar setting. For the purposes of this study, the cooperation orientation will be referred to as a work orientation rather than a goal orientation. The results that show that cooperation is the orientation paired most often with other orientations which suggest that this orientation may be describing a method for achievement rather than a system of beliefs that are related to behavior and ability perceptions. Table 11 lists the descriptive statistics and various patterns of occurrence of each orientation. When more than one orientation was primary, the score for each orientation was averaged. The mean average score is reported for these categories (i.e., cooperation and mastery orientations; cooperation, mastery, and performance-avoid orientations; mastery and performance-avoid orientations). For example, if a patient had an average score of 4.50 for the cooperation items, as well as for mastery items, that patient was identified as having two primary orientations. These two scores were then averaged to find the mean score between both orientations.

Table 11

Orientations – Frequency and Percentage Reported (n = 237)

	Frequency	Relative Percentage	Mean (Standard Deviation)
Orientation	(f)	(%)	*M (SD)*
Mastery	64	27	4.59 (.35)
Cooperation	32	13	4.48 (.43)
Performance-Avoid	5	2	4.26 (.44)
Cooperation and Mastery	61	25	4.48 (.46)
Cooperation, Mastery, and Performance-Avoid	31	13	4.22 (.39)
Mastery and Performance-Avoid	18	7	4.18 (.40)
Total	237	100	-

Table 12 displays the frequency and relative percentage of the occurrence of the mastery, cooperation, or performance-avoid orientation as the primary orientation within the demographic groups. As mentioned, this information was obtained by examining the highest mean scores between orientations for each patient. Each patient was then assigned a particular primary goal orientation. While a similar proportion of males and females had the mastery orientation as their primary goal orientation, a higher proportion of males than females had cooperation as their primary goal orientation. Further, it seemed that as age increased, the proportion of patients with mastery as their primary goal orientation became larger. The performance-avoid goal orientation occurred only for the young adult group which may be a reflection of the developmental level of the

younger patient participants. Pertaining to the demographic category of severity of disability, it was observed that while the proportion of patients with mastery orientations increased as the disability was perceived more temporary, the proportion of patients with the cooperation orientation decreased as disabilities were perceived more temporary. Perhaps the more severely disabled patients seemed to rely more on working with others and have a lesser sense of mastery than those with temporary disabilities. This finding is plausible given the fact that those with severe disabilities may not be able to envision an actual outcome of their rehabilitation and therefore may not be able to formulate a clear plan for achieving their goals. Reliance on others, patients or therapists, may play a larger role for this reason, making the mastery orientation less significant for this group of patients.

A significantly higher proportion of patients who were admitted to the rehabilitation hospital within 2 weeks or less of the assessment reported a mastery orientation versus cooperation orientation than those patients who had been at the rehabilitation hospital for a longer period of time. The mastery orientation occurred with a similar frequency for all subgroups related to length of time since the onset of the disability. However, the cooperation orientation was seen more with patients with recent onset (less than 1 week) of their disabilities. These data seemed to suggest that those persons who either were recently admitted to the rehabilitation hospital or had a recent onset of their disability were more mastery and cooperation oriented than those who had been dealing with their condition for greater than one month.

Table 12

Frequency and Relative Percentage of SinglePrimary Goal Orientation within Demographic Groups

Group Variable Subgroup	Primary Goal Orientation Mastery *f* (%)	 Cooperation *f* (%)	 Performance-Avoid *f* (%)
Gender			
Male	25 (27)*	11 (12)	1 (1)
Female	41 (29)	6 (4)	0
Age			
Young Adult	3 (20)	2 (13)	1 (6)
Middle Adult	19 (22)	12 (14)	0
Senior Adult	44 (33)	3 (2)	0
Disability			
Severe	2 (11)	5 (26)	0
Moderate	12 (24)	6 (12)	2 (4)
Temporary	52 (31)	6 (4)	0
Length of time since admission			
Recent (less than 1 week)	34 (31)	10 (9)	1 (1)
Moderate (1 – 2 weeks)	30 (30)	3 (9)	2 (2)
Past (1 week or longer)	3 (10)	4 (14)	0
Length of time since onset of disability Recent (less than 1 week)	2 (22)	3 (33)	1 (11)
Moderate (1 week to 1 month)	41 (24)	2 (1)	0
Past (more than 1 month)	13 (23)	2 (4)	1 (2)

*Note: Percentage of each goal orientation within the demographic group noted in parentheses.

To examine a particular goal orientation within certain demographic groups, an ANOVA was performed to determine if there were any differences in orientation among the sub-groups for the categorical variables of gender, age, severity of disability, length of time since admission and length of time since the onset of the disability. These data are presented in Table 13, which identifies the frequency of each goal orientation within each demographic group.

The data displayed in Table 13 revealed that there were some descriptive differences in the goal orientation means for each categorical grouping. However, the only statistical difference was found for the cooperation, mastery, and performance-approach orientations within the varying age groups. Specifically, within the cooperation and mastery orientations, young adults (18 – 35 years) reported higher scores than middle or senior adults (F[2,234] = 3.88, p = .02 and F[2,234] = 3.65, p = .03 respectively). More senior adults (over age 60) reported higher scores within the performance-approach orientation (F[2,234] = 3.85, p = .02). Younger patients seemed to use cooperation as a motivating factor in their rehabilitation and had mastery goals more so than older patients. Surprisingly, the performance-approach score was significantly different for the older age group. While the performance-approach orientation was not one of the most occurring orientations across all demographic groups, this finding is helpful in providing information about the performance goal orientation in general. Perhaps age is a factor that influences the performance goal orientation. The significantly different mean scores within the age sub-groups for three of the orientations included in the GOPRQ suggests that perhaps maturation or developmental factors influence achievement goal or work orientations. It would be important to investigate this relation further in a future study.

Table 13

ANOVA Table Comparing Orientation Scores for Demographic Groups

	Cooperation		Performance-Avoid		Mastery		Performance-Approach		Work Avoidance	
	M(SD)	*F*	*M(SD)*	*F*	*M(SD)*	*F*	*M(SD)*	*F*	*M(SD)*	*F*
Gender		*F*(1,235)		*F*(1,235) =		*F*(1,235) =		*F*(1,235)		*F*(1,235)
male	4.27 (.57)	= 1.60,	3.55 (.75)	1.98, *p* = .16	4.44 (.44)	.58,	2.56 (.80)	= 3.15,	2.16 (.82)	= .74,
female	4.17 (.59)	*p* = .21	3.69 (.73)		4.39 (.44)	*p* = .45	2.39 (.72)	*p* = .08	2.08 (.66)	*p* = .39
Age		***F*(2,234)**		*F*(2,234) =		***F*(2,234) =**		***F*(2,234)**		*F*(2,234)
young adult	4.40 (.66)	**= 3.88,**	3.82 (.74)	2.61,	4.62 (.35)	**3.65,**	2.27 (.85)	**= 3.85,**	1.87 (.74)	= 1.95,
middle adult	4.31 (.58)	***p* = .02**	3.50 (.85)	*p* = .08	4.46 (.46)	***p* = .03**	2.31 (.80)	***p* = .02**	2.04 (.77)	*p* = .15
senior adult	4.12 (.57)		3.70 (.65)		4.35 (.43)		2.57 (.70)		2.18 (.69)	
Diagnosis		*F*(2,234)		*F*(2,234) =		*F*(2,234) =		*F*(2,234)		*F*(2,234)
severe	4.35 (.63)	= .63,	3.79 (.70)	.47,	4.49 (.42)	.36,	2.65 (.94)	= 1.72,	2.32 (.80)	= .85,
moderate	4.19 (.62)	*p* = .54	3.63 (.66)	*p* = .62	4.40 (.48)	*p* = .70	2.31 (.76)	*p* = .18	2.11 (.60)	*p* = .43
temporary	4.20 (.57)		3.61 (.77)		4.40 (.43)		2.48 (.73)		2.09 (.75)	
Length of time since onset of disability		*F*(2,234) = .06, *p* = .94		*F*(2,234) = .08, *p* = .93		*F*(2,234) = .00, *p* = 1.00		*F*(2,234) = .21, *p* = .81		*F*(2,234) = .16, *p* = .85
recent	4.26 (.64)		3.56 (.97)		4.41 (.28)		2.30 (.84)		2.00 (.71)	
moderate	4.21 (.56)		3.63 (.73)		4.41 (.45)		2.47 (.77)		2.10 (.76)	
past	4.19 (.65)		3.65 (.75)		4.40 (.44)		2.46 (.72)		2.14 (.63)	
Length of time since admission		*F*(2,234) = 1.60, *p* = .20		*F*(2,234) = .32, *p* = .73		*F*(2,234) = 1.94, *p* = .15		*F*(2,234) = .64, *p* = .53		*F*(2,234) = .09, *p* = .91
recent	4.24 (.57)		3.60 (.82)		4.42 (.42)		2.45 (.78)		2.11 (.77)	
moderate	4.13 (.57)		3.64 (.66)		4.36 (.45)		2.50 (.74)		2.10 (.70)	
past	4.33 (.69)		3.72 (.70)		4.54 (.45)		2.32 (.74)		2.16 (.63)	

*Statistically significant *F* scores are bolded.

Patient Interview Responses Related to Goal Orientations

Every 10th patient was asked to participate in an interview that was intended to provide additional qualitative information about how they defined success, what kinds of cognitions they had related to behaviors to attain success, their perception of how well their personal goals correlated with their therapist's goals, and how they felt about working with other patients in pursuit of their goals. Initial themes were established from the pilot study. These themes were used to begin the analysis of the interview responses for the full study. An additional reader was solicited to verify themes for the full study to provide an external check of the interpretation of interview data (Creswell, 1998) as mentioned in Chapter III. A total of three readers participated in coding the interview data for the full study. Despite some differences in terms used, all readers generally categorized interview responses in the same way, capturing the same concepts. This outcome was expected as the interview questions were fairly structured and specific, not allowing for a wide variety of responses from patients. A total of 39 patient interviews were completed. To help answer the first research question, this section will focus on an analysis of the third, fourth, and fifth patient interview questions which pertained to patients' cognitions regarding what motivated them in rehabilitation. Included in this analysis, differences in patient responses by specific demographic groups will be presented. Refer to Appendix F for an outline of sample patient interview responses and the codes assigned.

The third question asked patients to describe what motivated them to work toward their personal goals in rehabilitation. Of the 39 patients responding to this question, 9 patients reported that thinking about gaining independence motivated them to work

toward their personal goals. Closely following this was the response of "do what's needed" (8 responses). Other responses were "getting well" (7 responses) and "getting back to family" (5 responses). Other responses were given but cited only one or two times. A larger proportion of middle adult patients reported "gaining independence" and "getting well", whereas, the senior adults displayed a greater dispersion of the responses mentioned. Males responded similarly to females with the exception that more females reported "getting back to family" as driving their motivation in rehabilitation.

From these responses, it seemed that people thought about getting better and what they needed to accomplish and that these cognitions helped to keep themselves motivated to work toward their personal goals. These kinds of responses were expected. People are usually admitted to this kind of rehabilitation hospital because they have the need and desire to reach a better level of functioning. Patients are typically screened for admission to this kind of rehabilitation facility. The patients are all admitted with the expectation that they will get better. This question was important to ask to establish a baseline for what motivated them during their rehabilitation. This question prepared them for the following question.

The next question pertained to the kinds of strategies or methods patients used to go about achieving their personal goals. I wanted to know if they had a particular approach they took when they participated in their therapy sessions. The answers to these were expected to glean some information related to goal orientation since goal orientations address the cognitions that influence the way a person may go about achieving their personal goals. Twelve out of the 39 participants reported that their strategy for achieving their personal goals was to "do what they tell me to do." The next

most frequent responses were: “think about things I need to practice” (7 responses), “have a positive outlook” (6 responses), “do my best and try hard” (5 responses), and “do more than they ask” (4 responses). Other responses were given but cited only one or two times. Among all demographic groups examined, these same patterns of responses were noted. These responses suggest that although patients have their own personal goals for rehabilitation, many seem to rely on their therapists to prescribe the means of achieving their end goals. However, these data also suggest that patients do take some ownership of working toward their goals and employ their own strategies to achieve them.

It was expected that the cooperation orientation would become a significant factor for this sample of patients. To provide another measure to test this hypothesis in addition to the quantitative data gathered with the GOPRQ, the interview question addressing working with others was included. Twenty-eight out of 39 of the patient participants reported that they liked working with other patients in their rehabilitation. Three did not like working with others and six did not have the opportunity. The most frequently cited reason why patients liked working with others was that they “could help each other out and encourage each other to try a little harder” (15 responses). Other responses were: “like being with and talking to other people” (7 responses), “you learn more” (4 responses), “we become like family” (3 responses), and “it makes me laugh and feel joyful” (3 responses). Others responses were given but cited only once or twice. Among the demographic groups examined, no significant differences were found in responses provided. Each group had a dispersion of responses within those aforementioned. These data suggest that conducting the rehabilitation sessions in a group format helped patients stay on track in terms of working on their goals. Patients seemed to act as a support group

for each other. While each person had their own manner in which they approached achieving their goals, having the external encouragement seemed to play a large role in sustaining their energy and positive attitude as they worked toward their goals.

The interview questions were included in the study to support the results from the GOPRQ. The primary goal orientations of this patient sample were: cooperation, mastery, and performance-avoidance. The interview question related to working with others, either other patients or the therapist, supports the outcome of the cooperation orientation indicating that working with others is a motivating aspect that helps patients achieve their personal goals. The mastery orientation is supported by the answers given during the interview that related to how the patients approached achieving their personal goals and how they defined success. Many of these responses were focused on individual effort and perception rather than comparing their abilities to others.

On the other hand, the performance orientation was supported by patients' responses during the interview that related to what motivated them and what approach they took to achieve their goals. Many of the more frequently reported responses had to do with doing what was prescribed by the therapists. These responses do not necessarily relate to the performance-avoidance orientation specifically but they do relate in general to a performance orientation. The interview questions did not glean any additional information to specifically support the performance-avoidance orientation outcome that resulted from the factor analysis of the GOPRQ.

Summary

In summary, the analyses of quantitative and qualitative data helped to answer the first research question pertaining to the goal orientations found with this sample of

patients receiving physical rehabilitation. The exploratory factor analysis of the data revealed that 5 predominant goal orientations exist for this sample. These orientations were the same that were found in the domains of education and sport. It was expected that similar patterns of achievement motivation would be found with this sample as were found with other studies related to goal orientations. Rehabilitation is a context in which individuals have high expectations for achievement, both cognitively and physically.

The goal orientations that were most prevalent for this sample were mastery, cooperation, and performance-avoid. Cooperation has been discussed in this study as a goal orientation. However, in the literature, this pattern of behavior was not definitively designated a goal orientation. It was discussed more as a work orientation. This goal or work orientation seems to be a factor that is significant for this sample of patient participants that contributes to their perception of success. The majority of the patients perceived that working with other patients was positive and helped them achieve their personal goals. Patient interview responses generally support the goal orientations identified by the GOPRQ. Patient responses to the way they went about achieving their personal goals were more mastery oriented. The performance-avoid orientation was illustrated in the patient interview responses that indicated patients' reliance on therapists for guidance and evaluation of their performance. Overall, it seems that patients do not want to be worse off than other patients and they identify personal goals to improve their abilities. Working with others is a positive aspect of staying motivated to work on their personal goals.

Relation of Goal Orientations to Success in Rehabilitation

The second and third research questions pertained to the way goal orientations relate to success in this sample of patients receiving physical rehabilitation and how success is defined in this setting. After identifying the kinds of goal orientations represented in this sample and the frequency each type occurred within this sample, it was necessary to examine the concept of success in rehabilitation. This was done via quantitative and qualitative methods. Quantitatively, patients and therapists rated levels of patient success on a 9-point Likert scale. Qualitatively, patients and therapists were asked how they defined success in rehabilitation via interview questions (for the patients) and short answers on a questionnaire (for the therapists).

Patient Responses

The second and third research questions can be examined from the patients' points of view by the last patient interview question and ratings of success provided by the patients. The last interview question asked the patients to define success in rehabilitation in their own words. It was important to ask this very specific question to obtain a succinct view of how this sample of patients defined success. This information was to be compared to responses the therapists reported to the same question and will be discussed later in this section. Patients most frequently defined success as "regaining or gaining independence" (19 responses, 49%) and returning to doing their daily activities more normally, the way they had done prior to their disability or illness. Many patients also defined success as "growing and improving day by day" (9 responses, 23%). These patients looked at success as meeting small challenges each day and seeing some kind of progress regardless of attaining their ultimate goal. Another definition of success that was

provided by 4 patients was “working at it the best that you can.” These patients seemed to feel that they could be successful when a lot of effort was used in working on their goals. If they tried hard, they were successful. Other responses were given but were only cited one or two times.

In addition to the qualitative data above, patients rated their level of success on a 9-point scale, where “9” indicated the highest level of success. Two of the patients did not answer the question related to rating their success on the 9-point scale. Therefore, there were only 235 patient data for this question. Patients thought they were fairly successful overall (M = 6.89, SD = 1.67).

Therapist Responses

A total of 200 questionnaires were obtained from 21 therapists. Each therapist completed multiple questionnaires, one on each of their patients participating in the study. Since each patient possessed differing levels of ability and different diagnoses and circumstances, responses from the therapists were expected to reflect these differences. That is, therapists were to respond to each patient case without influence of prior responses given for other patients in the study. Because 200 therapist responses were obtained, it was expected that any skewness of the data provided by the therapists would be limited.

Therapists used a 9-point scale to rate the level of success or agreement for each of three quantitative questions: level of current patient success; level of future patient success; and level of agreement in goals between patient and therapist. One indicated the lowest level of success or agreement and nine indicated the highest level of success or agreement.

In an effort to evaluate the internal consistency of therapist responses to these quantitative questions, descriptive statistics were obtained for each therapist's ratings of their group of patients. A large percentage (46%) of the therapist questionnaires were completed by 3 of the 21 therapists (i.e., Therapist A = 14%, Therapist F = 18%, and Therapist O = 14%). The other therapists (total of 18 therapists) each completed between .5 – 10% of the therapist questionnaires making up the 54% of the remaining questionnaires completed by the therapist participants. All of the therapists who responded to more than 1 questionnaire had a variety of responses to the rating of their patient's success (i.e., 2 - 9.) The most frequent rating was 7 (54 responses) and the least frequent ratings were 2 and 3 (2 and 7 responses respectively). After examining the response patterns for therapists' ratings of patient success, it seemed that therapists did evaluate each patient's level of success thoughtfully. Individual therapists did not show a pattern of recording the exact same rating for multiple patients. The same finding was seen in the response patterns of therapists' ratings of patient future success. However, a larger proportion of therapist responses were at the higher end of the 9-point scale (e.g., 81 of the therapist responses rated a 9 for future success of their patient).

In this section, therapists' responses to the first two quantitative questions mentioned and the last qualitative question pertaining to the definition of success will be presented. Therapists thought their patients were generally successful (M = 7.17, SD = 1.58) at that particular point in their rehabilitation at which the questionnaire was administered. Therapists thought their patients had the potential for future success (M = 7.83, SD = 1.39). In comparing the therapists' perception of patient success with the patients' perception of their own success with a paired t-test, a significant difference was

found in how success was perceived by each group of participants (t = -2.09, M = -.31, SD = 2.10, p = .04.) Therapists generally thought patients were more successful than the patients. This outcome is plausible as therapists have the advantage of possessing experience in working with many individuals with disabling conditions and would be better able to place their patients' level of success in this perspective. Small successes from the patient's point of view may be viewed as large successes from the therapist's point of view, as the therapist has a more refined level of expectation of success for patients with certain diagnoses.

An analysis of the relation between therapists' ratings of success and the primary goal orientations found with this sample involved obtaining frequency and correlation data. A cross tabulation was performed between patients designated as having a primary goal orientation of cooperation, mastery, or performance-avoid and the corresponding therapists' ratings of success for those patients. Higher therapists ratings of patient success (i.e., greater than or equal to 7) were noted more frequently for the cooperation and mastery orientations than the performance-avoid orientation with cooperation receiving the most high ratings (cooperation = 75 times, mastery = 63 times, performance-avoid = 8 times).

In examining the correlations among the goal orientations identified from the factor analysis and therapists' ratings of patient success, there was no highly significant correlation. Low but significant correlations were noted between therapist rating of success and cooperation (r = .146, p = .05), work avoidance (r = -.185, p = .05), and performance-avoid (r = -.179, p = .05). These data illustrate a relation between the perception of patient success by their therapists and the work avoidance and

performance-avoid orientations that warrants further investigation. Therapists were more positive about patient success when the patient reported a cooperative work orientation. However, therapists were less positive about their patients' success when patients reported a work avoidance or performance-avoid goal orientation. Conflicting information regarding the performance-avoid orientation was evident in the data. The performance-avoid goal orientation was identified as the third most often occurring goal orientation for this sample which indicates that a proportion of the patients were influenced by this orientation during their rehabilitation. Mean ratings of patient success from therapists and patients were on the higher end of the 9-point scale. However, after viewing the correlation data, it seems that therapist perception of patient success is negatively correlated with the performance-avoid goal orientation. These data do not provide enough information to establish any sort of relation between the performance-avoid goal orientation and success. Since all of the significant correlations were very low, one can deduce that there is really no evidence at this time to support that there is one best goal orientation for patients to display that will help them achieve greater success in rehabilitation.

Therapists also provided qualitative information about how they defined success in this particular rehabilitation setting. Three main themes were evident: increased independence (47% of the responses), ability to return home (13% of the responses), and meeting goals (8% of the responses). Several therapists made statements such as, "the patient will be able to use energy conservation techniques." These kinds of statements were grouped together under increased independence as they related to an aspect of patient education that allowed for more independence.

Summary

The second research question for the current study was important in examining the relation between goal orientations and success in rehabilitation. The average scores of the patients for each of the goal orientations and the ratings of patient success by both patients and therapists were used for this examination. Correlations were also obtained for these data. First, patient and therapist ratings of patients success correlated significantly positively (r = .177, p = .05). This correlation was very low which indicated that there really was not much correlation between patient and therapist ratings of success. This finding is consistent with the statistically significant different ratings via the paired t-test discussed earlier. A positive correlation between the rating of patient success and a particular goal orientation was with the cooperation orientation (r = .146, p = .05). This was the only positive correlation found between ratings of success and goal orientation. Again, this correlation is very low which indicates that there is not much correlation between level of success and goal orientation. Quantitatively, it appears that the level of perceived success by patients have very little relation to a particular goal orientation.

Additionally, there were significantly negative correlations between therapist ratings of patient success and the performance-avoid and work avoidance orientations. While the performance-avoid orientation was found to have high scores with some frequency in the sample (i.e., 80 patient participants had a high score or equally high score for this orientation), therapists' rating of patient success had a negative correlation (r = -.179, p = .05) with this particular goal orientation. While this correlation is low, it seems that those patients with a performance-avoid goal orientation, are perceived as less

successful by their therapists. This finding suggests that patients might employ a performance-avoid goal orientation toward goal attainment but therapists do not find this approach helpful for patients' goal attainment. However, none of the correlation data provide strong evidence for establishing a relation between goal orientations and success. Additional study is needed to explore this relation further.

The question pertaining to the relation between goal orientations and success in rehabilitation is addressed by the analysis of data from the GOPRQ, which suggests that the mastery, cooperation, and performance-avoid goal orientations are related to success in physical rehabilitation from both the patient and therapist perspectives. Additional information to answer this question was provided by examining the correlations between ratings of patient success and goal orientations. The cooperation orientation weakly correlated with patient perceptions of success but not with therapist perceptions of patient success. In addition, while the performance-avoid orientation was evident more frequently than the performance-approach orientation; this orientation pattern did not correlate positively with either patient or therapist ratings of patient success. Given the observation that patients and therapists perceived that patients were successful, the performance-avoid orientation may have some influence as a goal orientation on success in rehabilitation, despite the insignificant or low correlation with ratings of patient success.

The third research question pertaining to the definition of success was provided by both patients and therapists by interview or short answer questions. Most patients and therapists defined success as achieving a greater level of dependence or better level of function. However, patients also defined success by how much effort was exerted in

attempting to accomplish a task or the fact that they were improving even if personal goals were not met. Some therapists, but not patients, specifically identified meeting goals as their definition of success. Much of the literature on goals in rehabilitation is related to goal setting and goal content (Bradley et al., 1999; Haas, 1993; Lawler et al., 1999; Phillips & Gully, 1997; Ponte-Allen & Giles, 1999; Rockwood, 1994.) This illustrates the rehabilitation field's focus on goals as an objective measure of success. For this sample, while there is some similarity in the way success was defined by patients and therapists, it seemed that patients also felt that just making progress or making a good effort was an aspect of success.

Factors Affecting Patient Success

Qualitative data were obtained from the Therapist Questionnaire regarding the factors that the therapists perceived affected their patients' success and the therapists' definition of success. These data helped to answer the fourth research question pertaining to the factors affecting success. A review of the literature found that factors other than motivation (e.g., age, severity of the disability, patient/therapist interactions, social support, length of stay, discharge placement, and patient expectations) could affect success in rehabilitation (Albrecht & Higgins, 1977; Malec & Degiorgio, 2002; Roessler, 1980). To have a fuller picture of patient success and goal orientations for this sample of patients, it was important to investigate other factors that were perceived as affecting each patients level of success from the therapist's point of view.

The factors cited most often by the therapists fell into the same themes as found with the pilot study. Many therapists (36%) responded that the patient's level of motivation affected that patient's success. The next factor reported by 29% of the

therapists was family support. Pain level (19%) and the ability or willingness to participate in therapy (18%) were also reported as factors affecting this sample of patients. Positive attitude (10%) and age (4%) were reported with less frequency. Since the therapists generally thought their patients were successful, the factors they listed could be considered to be factors that helped these patients be successful. Many of these factors have been cited in previous studies as well (e.g., Roessler, 1980).

Specific factors and their relation to success were examined more closely as these were mentioned in the literature as either affecting success (e.g., Roessler, 1980) or impacting goal orientation. It was important to see if these factors were relevant for this sample. These specific factors were: age, severity of disability, level of support, and length of time since the onset of disability. The mean ratings of patient success provided by both the patient and the therapist through the 9-point Likert scale were examined with each of the aforementioned specific factors (demographic group). Table 14 outlines the mean ratings for each patient sub-group.

After examining Table 14, it appeared that there were not large differences in the ratings of patient success by patients and therapists within the patient categories. However, with a closer examination, statistically significant differences in the level of success ratings provided by therapists existed for level of disability and length of time since the onset of the disability. Patients who had temporary disabilities and whose onset of the disability occurred within one month were perceived as more successful than those patients with more severe disabilities or whose onset was greater or less than 1 week to 1 month. An analysis of variance (ANOVA) of these data using level of success provided

by either patients or therapists as the dependent variable illustrates these findings (see Table 15).

Table 14

Mean Ratings of Patient Success by Patient Sub-Groups

Group Sub-Group	Mean Patient Rating of Success	Mean Therapist Rating of Patient Success
Gender		
Male	6.86	7.19
Female	6.89	7.14
Age		
Young Adult (< 35 years)	6.79	6.94
Middle Adult (35-60 years)	6.65	7.31
Senior Adult (>60 years)	7.04	7.08
Diagnosis		
Severe Disability	6.79	6.57
Moderate Disability	6.82	6.63
Temporary Disability	6.91	7.37
Support Available		
Family	6.92	7.16
Significant Other	7.50	7.67
None	6.54	7.22
Other (e.g., attendant)	6.91	6.83
Length of time since onset		
Recent (less than 1 week)	7.00	6.75
Moderate (1 week - 1 month)	6.88	7.37
Past (greater than 1 month)	6.85	6.46

The significant difference in ratings of success by therapists for patients with differing levels of disability and time since onset of their disabilities may be explained in two ways. First, patients with temporary disabilities presumably have less significant deficits to overcome than those patients with more severe disabilities. Therefore, those patients with temporary disabilities appear more successful in relation to other patients. Second, patients at the beginning of their rehabilitation may be adjusting to their situation. Whereas, those patients who have been dealing with their disability for at least a week have had the opportunity to focus their energy on the rehabilitation process and may hold hopes of full recovery. Those patients whose onset of their disability was greater than 1 month may be at a point where their progress has slowed and considerations of a life time with a disability are evident. The psychological adjustment to disability may impact the level of success patients achieve at this stage in their rehabilitation.

Table 15

ANOVA Statistics Grouped by Patient and Therapist Ratings of Success

Group	ANOVA with Patient Ratings of Success	ANOVA with Therapist Ratings of Success
Gender	$F(1,233) = .02$, $p = .89$	$F(1,198) = .05$, $p = .83$
Age	$F(2,232) = 1.47$, $p = .23$	$F(2,197) = .57$, $p = .57$
Diagnosis	$F(2,232) = .09$, $p = .92$	$F(2,197) = 4.61$, $p = .01$
Level of Support	$F(3,231) = 1.08$, $p = .36$	$F(3,196) = .49$, $p = .69$
Length of time since onset of disability	$F(2,232) = .03$, $p = .97$	$F(2,197) = 6.07$, $p = .001$

Although therapists viewed success differently for patients with temporary disabilities and whose disability was more moderate in onset, those patients did not view success significantly differently. Very small (statistically insignificant) differences were noted in the category of onset date. Patients with recent onset were rated their level of success higher than those patients with a moderate onset. Moderate onset patients rated their success higher than those with a past onset. This slight decrease in ratings may illustrate the psychosocial adjustment patients undergo in the rehabilitation process. Once again, therapists' prior knowledge of expected outcomes for various kinds of disabilities likely impacted their ratings of patient success, especially for the two significant patient categories mentioned.

From the data provided in Table 15, the conclusion was made that there was no statistically significant difference in the ratings of success between patient groups by either patients or therapists except for severity of disability and length of time since the onset of the disability. In terms of answering the fourth research question, it seemed that these demographic data did not affect patient perceptions of their success. Two aspects of the demographic data did prove to be factors affecting the level of success perceived by therapists. Those data were severity of disability and time since onset of the disability.

Even though there were only two statistically significant differences in the perceptions of success between patient groups, it was interesting to see the slight differences in ratings when examining all of the means. The level of patient success perceived by specific sub-groups of patients shows a small difference in the age categories and support available categories. It seems that the senior adults perceived slightly more success than did the younger age groups. This finding may reflect a

different perception of success that may be influenced by more life experiences from which to judge success. It was surprising that there was a small difference in perception of patient success by patients who were going to rely on support from significant others over other support systems. It was expected that those patients who had family support would perceive more success. Significant others consisted of friends, neighbors, and girlfriends or boyfriends. This finding may suggest that there is something occurring in relationships between patients and their significant others that may be different than the relationships between patients and their family members. As discussed, it was expected that there would be a difference in patients' perception of success within the diagnosis categories. It seems that for this sample, the severity of the disability did not affect the level of success perceived by patients.

Therapist ratings of patient success, examined by patient sub-groups, were slightly different for all of the sub-groups with the same patterns of responses occurring for the sub-group of support available as was found with the patient ratings of success. Therapists, however, seemed to perceive that the middle adult group was more successful (see Table 14). The perceptions of older persons may be related to developmental level or other factors that influence their outlook on these kinds of situations. A majority of the therapists seemed to be under 35 years old. Therapists may have felt that the patients with temporary disabilities were more successful due to the fact that those patients most likely reached their goals faster due to the nature of their disabilities.

In terms of factors affecting success with this sample, therapists identified motivation, family support, pain, and ability or desire to participate as the primary factors affecting success with this sample. Only 4% of the therapists identified age as a factor

affecting success. The literature supports these findings (Roessler, 1980). The literature also identified severity of disability, length of time since onset of disability as factors that would affect success (Albrecht & Higgins, 1977; Roessler, 1980). As illustrated in the ANOVA, these factors did proved to be significant from the therapist's point of view in affecting success. These findings may not reflect an accurate assessment of the impact of these factors on success in rehabilitation. Alternate sampling procedures and measures could produce different finding which would help to answer this question with more certainty.

Differences in Perceptions of Success

The last research question pertained to comparing the definitions of success from the patients' and therapists' points of view for differences. Some of the data from patient and therapist interviews presented already help to answer this question. In addition to responses to questions asking patients and therapists to define success, interview and short answer questions related to whether the patients and therapists had the same goals for the patients provided useful information to answer this question.

In the patient interviews, 100% of the patients who were interviewed responded positively to the first question concerning whether patients had personal goal for their rehabilitation. They all had personal goals for their rehabilitation. This outcome was expected for this question. The primary purpose in asking this question was to clearly determine that the patients had goals for themselves. It was important to know that the patients had not assumed goals that had been prescribed to them by their therapists.

The next patient question obtained information about the patient's perception of how well their goals matched those of their therapists. It was felt that patients would be

more motivated to work on their own personal goals. It would also be important to know that the therapists planned treatment sessions based on the patients' goals. At the very least, it would be important that patients and therapists worked together to set goals. As identified in the literature (Haas, 1993; Lawler et al., 1999; Ponte-Allan & Giles, 1999), patients were more actively engaged in their therapy program when they were involved in goal setting. In the pilot study, the following themes were established to use for initial analysis of the interview data for the full study: "agreement in goals," "disagreement in goals," and "don't know." Thirty-one of the 39 patients reported agreement in goals with 4 reporting disagreement in goals. Four other patients responded with "don't know" or "somewhat." Since most of the patients perceived that their goals matched their therapists' goals, the patients should have been motivated to work on those goals in their rehabilitation. This also signified that patients took ownership of their goals and that the therapists helped them work toward those goals. Taking ownership of personal goals suggests a mastery orientation. Patients potentially monitor their own progress toward achieving their goals.

Therapists were also asked if they thought their goals were the same as their patients' goals through a 9 point Likert scale. Therapists generally thought that their goals were in line with their patients' goals ($M = 7.45$, $SD = 1.16$). These data, along with other data presented earlier comparing ratings of patient success, suggest that both the therapists and patients perceived patients were successful and those therapists rated success significantly higher than patients. Analyses of patient and therapist responses for the definition of success did reveal a difference.

Results presented earlier pertaining to the way patients and therapists defined success revealed that similar proportions of patients and therapists defined success as gaining independence. However, patients also took into account the amount of effort and the fact that some progress was being made as a measure of success. Therapists focused more on goal attainment as their definition.

In summary, there did seem to be some discrepancy between the perceptions of patients and therapists in regard to determination of goals and success. While goals tended to be in agreement, the definitions and measures of success were a little different for patients and therapists. Overall, it seemed that these data suggest that measures were used at this particular rehabilitation hospital that encouraged a client-centered approach in goal setting. This approach is supported in the literature (Pollock, 1993) as a positive way to promote patient involvement and sustain motivation during the rehabilitation process. However, patients and therapists viewed achievement somewhat differently.

CHAPTER V

DISCUSSION

The purpose of this study was to explore the kind of goal structures, specifically, achievement goal orientations, that are reported in physical rehabilitation and how these goal orientations and other factors related to patients' success. Another purpose for this study involved identifying the specific ways patients and therapists defined success in rehabilitation and if these definitions were significantly different. The first step in this investigation involved creating and validating an instrument that could be used to determine goal orientations among a sample of patients receiving physical rehabilitation. Ultimately, results from this study may prove useful in planning rehabilitation intervention programs that may provide more efficient means of providing services. Research questions posed were as follows:

- What goal orientation patterns exist in physical rehabilitation?
- What is the relation between goal orientation and success in rehabilitation?
- How is success defined and measured in physical rehabilitation? Specifically, how do patients define success?
- What factors are involved in rehab success?
- How is the definition of success different for people receiving rehabilitation that for those providing the services?

In addition to these research questions, three hypotheses were presented. The first stated that the patterns of goal orientations found in with patients receiving physical rehabilitation would be similar to those patterns found in education and sport. The second hypothesis stated that the mastery and cooperation orientations would be significantly

related to greater success in rehabilitation. The third hypothesis stated that the goal orientations found to relate to higher levels of achievement in education and sport would also be found to relate to better success in rehabilitation, as rated by occupational therapists.

To accomplish this exploration and to answer the research questions and test the hypotheses, I used a combination of quantitative and qualitative measures. First, I examined the goal orientations through an exploratory factor analysis of the Goal Orientations in Physical Rehabilitation Questionnaire. This questionnaire was created by this researcher for the purposes of the study based on research with similar scales by Nicholls (1989) and Duda (1989; 1992). The questionnaire was pilot tested before using it for the full study. Next, I obtained information regarding the perceptions of success from both the patient and therapist point of view via a 9-point Likert scale. Qualitative information about the definition of success and factors that affected success, as well as perceptions of working with others during the rehabilitation process was obtained with structured questions given via interview or on a questionnaire (e.g., Therapist Questionnaire). Descriptive statistics were used to explore the relation between various aspects of the data. This chapter will provide a discussion of the results as they pertain to each research question and hypothesis. The chapter will conclude with an outline of the limitations of the study, the projected impact this study will have on rehabilitation medicine, and implications for future research.

Validation of the GOPRQ

The first step in the study was to create and validate an instrument that could be used to assess goal orientations for a sample of patients receiving physical rehabilitation.

It was important to validate the instrument before examining relations between goal orientations and patient success. Factor and item analyses were conducted to examine the factors that emerged with this sample and the reliability and validity of the GOPRQ.

The GOPRQ was created using 25-items that were based on 5 goal or work orientations: mastery, performance-approach, performance-avoid, work avoidance, and cooperation. Cooperation was considered a work orientation. The questionnaire was pilot tested before use in the study. In the exploratory factor analysis of the data to determine the goal orientations for this sample of patients, it was helpful to do both the Varimax rotation and the Direct Oblimin rotation to obtain the clearest depiction of loading scores for interpretation. When the initial solution presented 6 components or factors rather than the 5 factors on which the questionnaire was created, further investigation was indicated. In keeping with accepted practices for examining factor structures, outlined in Chapter IV (e.g., Kim & Mueller, 1978), the third factor was excluded from further analyses because this factor exhibited only one significant loading score rendering it an insignificant factor. The remaining factors fell into the 5 goal or work orientations that the questionnaire was based and were assigned the following names: cooperation orientation, performance-avoid orientation, performance-approach orientation, mastery orientation, and work avoidance orientation.

The item analysis reinforced the finding of 5 main orientations obtained from the GOPRQ. Reliability of the factors or orientations was significant for each orientation with a Cronbach alpha score of at least .61 for all of the orientations except for the work avoidance orientation which had a reliability of .43. The lower reliability for the items measuring the work avoidance orientation may be due to the fact that there were only two

items that had significant loading scores for this orientation. All of the other orientations contained three items that significantly loaded on a particular orientation.

An examination of the inter-item correlations also reinforced the idea that the items on the questionnaire did relate to other items in a way that was expected. For example, mastery items were expected to correlate highly in a positive direction with each other. Mastery items were expected to correlate negatively with items designated for the work avoidance orientation. Mastery and cooperation items were expected to correlate positively since cooperation was viewed by this researcher as a positive work orientation that would aid in achieving success and influencing intrinsic motivation. Cooperation and mastery items not only correlated significantly within each orientation but also across both orientations. Likewise, both the cooperation and mastery items had significant negative correlations with the work avoidance orientation.

Several items (i.e., Items 2, 9, 16, 21, 22, 25) were not included in the reliability analysis because they did not load significantly on any one component. Because 6 of the items were removed, it would be necessary to conduct another study using the remaining items. A follow-up study with the remaining items may produce a stronger relation between those items. Creating a shorter, more focused, questionnaire may also improve participants' ability to attend to the task and therefore provide more reliable responses.

Because the cooperation orientation was considered as a work orientation rather than a goal orientation by Nicholls (1989), another study examining the influence this particular work orientation has on success in rehabilitation is warranted. For this study, cooperation was also considered a work orientation because it had the strongest reliability and was most often paired with other goal orientations as the most reported orientation

among this sample which indicates that it is an idea that perhaps underlies the goal orientations reported. Interview data from the patients provided some insight into how patients view the idea of cooperation in their rehabilitation. Most of the patients' responses related to cooperation depicted the supportive aspect of working with others. None of the comments indicated any impact of working with others on patients' beliefs about their ability. This would be an important aspect in describing cooperation as a goal orientation rather than a work orientation. A deeper investigation of patients' cognitions pertaining to cooperation would be helpful in fully understanding the influence this concept has on rehabilitation.

Goal Orientations in Physical Rehabilitation

The first research question in this study pertained to identifying the kinds of goal orientations that are reported in physical rehabilitation. Results from the factor analysis described in the prior section and patient interview questions were used to answer this question. The interview questions were used to gather qualitative information about patients' motivations during the rehabilitation process. The information obtained via the interview questions were intended to support the results obtained from the GOPRQ.

Rather than assume that the goal orientations that were salient for education and sport would also be salient for this sample, a critical analysis of the data from the factor analysis, using proper statistical methods was adhered to from the start. The analysis of the factor analysis after the first Varimax rotation did indicate a different pattern of orientations than was found with the Direct Oblimin rotation. In keeping with factor analysis methods, it was critical to do the oblique rotation to display the data optimally for interpretation.

After reading the literature, it was expected that the same patterns of goal or work orientations would be found with this sample of patients receiving physical rehabilitation as were found in education and sport domains. This first hypothesis was found to be generally true. However, the GOPRQ combined information and formatting from several questionnaires that had been used in the past to determine goal orientations (Duda, 1989; Murphy et al., 2002; Nicholls, 1989). None of these prior studies included all 5 of the specific orientations targeted for the GOPRQ. Targeting all 5 orientations in one questionnaire may have affected the outcome.

The relations that emerged pertaining to goal or work orientations may have been different if the instrument were created differently. For example, one way the outcomes may have been affected by including five orientations on one scale may be the dilution of information provided by the participants that may not have captured the use of different kinds of orientations in various rehabilitative contexts. The specificity of the items may not have been adequate enough to limit the inter-relations of items on the questionnaire. Patients were asked to think generally about their rehabilitation experience. For example, several patients made informal statements of "sometimes I feel good [when I do better than the others] and sometimes I don't" which could indicate that perhaps more specific information may have been obtained regarding goal orientations if the context were specified or limiting the questionnaire to certain goal orientations to gain a more precise presentation of goal orientations for this sample. For example, the cooperation orientation, as mentioned, appeared to be an orientation that needed more specific information as it was the most common of the orientations found with this sample. Prior

studies found this orientation to be more of a work orientation than a goal orientation (e.g., Duda & Nicholls, 1992).

A second way the inclusion of 5 goal orientations in the questionnaire may have affected the results is that it may have presented the participant with more options for providing responses rather than limiting the items to fewer orientations. Giving more options for responses may have helped in partitioning the goal orientations so that a better representation of the motivation patterns was obtained. For example, the performance orientation was separated into performance-avoid and performance-approach orientations. Had this goal orientation not been partitioned into two, the results would have not shown that the performance-avoid orientation is more significant for this sample than the performance-approach orientation. This finding is significant in describing what occurs in a rehabilitation context. A future study which more closely examines each goal orientation more discreetly is indicated.

Lastly, the fact that the five goal or work orientations on which the questionnaire was based were found to be salient does not indicate that there were not other phenomena underlying these data. The factor analysis explained only 57% of the variance in this sample. This indicates that there is, in fact, other phenomena not accounted for in the GOPRQ related to goal orientations. If one re-visits the definition of goal orientation, one finds that a goal orientation includes beliefs about success, ability, effort, purposes, standards, competence, and errors (Pintrich, 2000). Patients engaging in a physical rehabilitation program may not have adequate information regarding their potential for success or ability level in this context. In addition, they may not have the ability to self-identify standards, competence, and errors if they do not have prior experience

participating in physical rehabilitation. They may rely on their therapists or other health professionals for this information. The idea of effort may be different in rehabilitation where the degree of effort may be irrelevant. There may be cases in which, no matter how much effort is expended, success, if defined as full recovery, will not be achieved. I believe that patients identify a purpose for the rehabilitation and can be goal driven around that purpose. All of the aspects of goal orientation for rehabilitation are not defined well. Future study to provide additional information related to the components of goal orientations mentioned would help in defining these components or aspects for rehabilitation.

For example, it would be very useful in a future study to examine the wording of the items on the GOPRQ and possibly add other items that would provide information related to how patients perceive their ability to be successful and how they feel about the amount of effort they use in their therapy sessions and how this relates to success. In addition, items addressing how much they rely on their therapists to outline the standards and errors in therapy would be helpful. With the addition of these kinds of items, different patterns of goal orientations may emerge which captures a larger percentage of the variance.

Goal Orientations of the Sample

In validating the GOPRQ for this study, 5 orientations were identified. The next step involved uncovering the primary orientations of the sample under study. After transforming the scores that each patient indicated on the questionnaire for each of the significant items that were retained after the item analysis, it was clear that the most often occurring orientations were: mastery, cooperation, and performance-avoid orientations,

in that order. Mastery and performance-avoid orientations were the goal orientations and cooperation was a work orientation. Most of the patients in the sample (57%) had a combination of at least two orientations. The most frequent combination was mastery and cooperation (26%.) The next most frequent combination was mastery, cooperation, and performance-avoid (13%.) Pintrich (2000) looked at the idea of individuals having multiple goal orientations and that it could be adaptive to have more than one motivational orientation. Different educational contexts may influence the use of a particular goal orientation. The data from the current study illustrates this concept for physical rehabilitation. In Pintrich's research, mastery and performance-approach orientations most often were paired together. In Steinberg, Singer, and Murphey's research (2000), it was also found that athletes could possess more than one goal orientation depending on the context of the sport situation and achieve a high level of success.

The current study illustrates a different relation between the mastery and performance goal orientations than was found in the literature cited. The performance-avoid and mastery orientations were paired more often when a patient had equally high scores on two orientations rather than mastery and performance-approach orientations. The same was true for the mastery and cooperation orientations. Theoretically, individuals are more successful when they have a higher level of intrinsic motivation. When a performance-approach orientation is also present, the success can be even greater. Not only is the individual intrinsically motivated to achieve, the drive to perform better than others is also present.

However, in this rehabilitation setting, where individuals already have disabling conditions, the use of a performance-avoid goal orientation or the pairing of this orientation with a mastery goal orientation and a cooperation work orientation is plausible. Perhaps, rather than striving to be the best, it seems that most of the patients in the study who have a performance-avoid orientation may strive to not be the worst. They may not ever get to a point that they consider optimal functioning but they can work to make sure their condition does not get any worse. While the patients may want to do their best and practice to regain their independence, they also seem to compare themselves with other patients and try not to let their own condition get any worse. They can usually observe other patients who are in worse condition and they may want to avoid that situation.

In addition, the predominance of the performance-avoid orientation over the performance-approach orientation can be related to certain cognitions patients have about their abilities in this context. While many patients seemed to be intrinsically motivated and perhaps have a sense that they have the ability to succeed as would be expected with a mastery orientation; those patients who may not have felt very confident in their abilities to be successful may have preferred a performance-avoid orientation. For the majority of the patient participants, this was their first experience in rehabilitation. They did not have prior rehabilitation experiences on which to determine their ability to succeed in this context. Those patients who may have been through a prior rehabilitation experience would have a better sense of their ability to succeed and therefore, may present with different kinds of goal orientations. Generally, both patients and therapists were positive about the level of success that was achieved in the patients' rehabilitation.

It seems that the performance-avoid goal orientation is positively related to success and may be an adaptive motivational pattern in this context.

The mastery goal orientation was expected to be a significant orientation for this sample as hypothesized. All of the patients stated that they had personal goals for their rehabilitation and all had a personal investment in achieving greater independence. Patients may have understood that it was through their own efforts that they would be more successful even with the guidance of their therapists and feedback from other patients. Several informal comments made by patients referred to the fact that they were at the rehabilitation center to "work on my own problems." Some comments from the patient interviews were related to how hard they worked in therapy and doing the best that they could in therapy. These comments all reflect a mastery goal orientation.

The cooperation orientation was also revealed to be a significant work orientation. This finding also supports the second hypothesis which stated that the mastery and cooperation orientations would be significant for this sample. The interview questions and the results of the GOPRQ suggest that these patients gain something by working with others and that it helps sustain their motivation and desire to work towards their goals. As will be discussed in the next section, a significant correlation was found between the cooperation orientation and the patients' perception of success. One study by Gelsomino (2000) concluded that group intervention was cost effective and helped motivate patients receiving physical therapy in a physical rehabilitation setting. Patients in the present study commented on the support they received and support they provided to others by working with other patients during their rehabilitation. I believe that this kind of support

is crucial in this context especially when there is the potential of falling into a depression when goals or aspirations are not met.

As noted, there are several aspects related to cognitions associated with goal orientations that may be difficult to apply to the rehabilitation context (e.g., perceived effort, ability, or potential for success). Although not focused on in this study, emotional or psychological factors may also influence the goal orientation of patients receiving physical rehabilitation. The emotional state of the patient could possibly change from one day to the next depending on the outcome of a particular treatment session.
For example, someone who took his first steps alone may feel elated, very competent, and successful at that particular time. However, this same person may have felt depressed and very incompetent the day before when he tried to stand on his own. The timing of the administration of the GOPRQ could yield very different results. As mentioned in Chapter IV, the patients participated in the study mostly in the evenings and on weekends. They may have been in a reflective mood at those times of the day and perhaps were very tired from all of their therapy sessions. In a future study, it would be important to obtain information about recent events, emotional state of the patient, and a rating of how the patient feels about his rehabilitation (e.g., “Do you feel good or happy about your rehabilitation at this time?”).

Goal Orientations and Success in Rehabilitation

The second research question pertained to the relation between goal orientations and actual success outcomes in rehabilitation. This question was answered by considering the predominant orientations found in this sample (i.e., mastery, cooperation, performance-avoid) and examining the mean rating of patient success provided by the

patients and their therapists. Overall, therapists and patients felt that patients were successful in their rehabilitation at the time of the administration of the questionnaire with therapists significantly more positive regarding patient success than patients were about their own success. Given that the most often occurring goal orientations were mastery and performance-avoid and that the cooperation work orientation occurred frequently, the link can be made that these goal orientations are positively related to success. However, in the examination of the correlation between the ratings of success and these orientations, the correlations were low, indicating a weak relation between success and any particular goal or work orientation. An explanation for this may lie in the structure of the GOPRQ. The items relating to the different orientations may have had a greater degree of overlap in assessing one idea from another than intended. Another explanation may be that there are some other underlying phenomena that relates to success other than or in addition to a person's goal or work orientation. Modifying the instrument to gather data on how patients modify their effort or perception of ability throughout the rehabilitation process may be helpful in uncovering new phenomena. Perhaps other cognitive factors or emotional factors play a greater role in influencing success than goal orientation. The relationship between therapist and patient may also be a factor. In a rehabilitation setting such as the one used for the study, therapists and patients develop fairly close relationships and the therapist's ability to persuade or encourage the patient in the appropriate way may have a greater impact on success.

The third hypothesis stated that the same goal orientations that related to success in education and sport domains would also lead to success in the rehabilitation domain. As discussed, this hypothesis was not fully supported by the data. The mastery and

cooperation orientations were positively related to success in sport, education, and rehabilitation. However the performance-avoid orientation was also related to success in rehabilitation. Sport and education research do not support this relation in their studies.

An issue related to goal orientations that should be addressed is the fact that in assessing or identifying a goal orientation for a person or persons, one assumes that the individual has personal achievement goals. These personal goals may not be the same as the therapist's or teacher's goals. As mentioned in Chapter I and II, the goals that patients have in the rehabilitation setting are heavily influenced by the health professional. As will be discussed in the next section, therapists and patients in the current study agreed that they shared the same goals. Although the therapists most likely influenced the kinds of personal goals the patients possessed, it may be that patients really did internalize these goals and "owned" them to some extent. Findings from this study do not provide any explicit data relative to this observation. Therefore, additional research would be indicated to examine the collaborative process in goal setting.

The goal orientations that were identified for this sample of patients are valid in describing how patients go about achieving their personal goals. Since patients in the study identified that they had personal goals, even if these goals were influenced by their therapists, they were still goals they wanted to achieve. Understanding the goal or work orientations that are used to achieve these goals is relevant and useful for rehabilitation medicine.

Definition of Success

The third and fifth research questions pertained to outlining the definition of success from both the patient and therapist points of view and the relation between these

two viewpoints. Selected patients (i.e., every 10th patient) were specifically asked to define success in their interviews. Many defined success by the level of independence they achieved in doing the things they needed to do in their daily lives. Many patients also reported that making progress each day was success. Most of the patients relied on goals to help define the parameters of the success but that the progress toward those goals were just as much a measure of success as actually meeting the goals.

Therapists were also asked to define success in a specific question listed on their questionnaires. The majority of the therapists wrote that increased level of independence was success. This did not always mean total independence but that the patient could do more on their own than they did when they first started the rehabilitation program. Therapists also identified "meeting goals" as a definition of success.

Patients and therapists were similar in their definitions of success when they referred to meeting goals or gaining independence. However, patients seemed to also define success as the progress made toward identified goals. This qualitative information was obtained via patient interview questions and therapists' written comments on their questionnaires. One patient made the comment "They [the therapists] get so excited over the littlest things! They are really happy for you when you can take a couple of steps, when I'm trying to walk the whole block!" This suggests that encouraging comments from the therapist can influence patients' beliefs regarding success even if specific goals are not being reached. In addition to examining goal orientations, a future study should also include an examination of the rehabilitation environment and the kinds of goal orientations it seems to encourage. Prior studies have examined the classroom

environment, the goal orientations it encourages, and how the environment relates to success (Ames, 1992). Environmental factors may affect rehabilitation success.

As discussed, patients viewed progress toward goals as signs of success more so than therapists. Since therapists were responsible for documenting the achievement of goals, perhaps their responses did not reflect their recognition of the progress their patients made toward greater independence. In documenting status or abilities, therapists are limited in the kinds of information conveyed in the medical record. Patients either meet their goals or not. A specific question added to the Therapist Questionnaire related to this aspect of defining success as more of a process may uncover that therapists also view success in this way.

Patients were asked if they thought that their goals were the same as their therapist's goals and the majority reported that they did think their goals were in line with each other. Only a few patients felt that they had different goals than their therapists. Therapists were also asked if they thought their goals coincided via a 9-point Likert scale. Most of the therapists indicated that they felt their goals were in line with their patient's goals. It was important to establish that patients and therapists were working toward the same ends to support the earlier finding of similar definitions of success between both participant groups. Despite the fact that both participant groups in the study felt they shared the same goals, the extent to which those goals were more a construction from the therapist's point of view was not ascertained in this study. Patients may have felt that the health professional had more knowledge of the kinds of goals that would be best to attain. In this case, the patient may have just agreed with the therapist rather than actually hold to the same goals in any deep or convinced manner. If one is to truly understand the

cognitions of patients related to achievement in rehabilitation, it would be important to partition out any influencing factors from the health professional when examining goals and goal setting. A future qualitative study with patient focus groups may be helpful in identifying some of the issues, opinions, and biases that may occur in goal setting from the patient's point of view.

Factors Related to Success in Rehabilitation

The fourth research question pertained to identifying those factors that seemed to affect success with this sample of patients. This was measured by examining the mean rating of success provided by both the patients and the therapists within certain demographic categories. The literature cited age of patient, support system available, severity of disability, and time since onset of disability as factors that can affect success physical rehabilitation. These demographic categories were used to examine the mean ratings of success of the patients. As noted in Chapter IV, there were no significant differences in the ratings of success by patients or therapists between the subgroups with each of these demographic categories. Small or slight differences were found among the means reported by patients for age and support available. Small or slight differences were found among the means reported by therapists for age, level of disability, and support available.

Older patients perceived themselves to be more successful while therapists reported that the middle aged patients were more successful. This finding may have more to do with developmental or maturation stage than with the actual rehabilitation process. Older patients may have more life experiences from which to draw an opinion of success than younger individuals. Prior studies that related achievement with goal orientations

were completed with persons who were at the college age level or younger. Relations between these variables may follow a different pattern for older persons than for younger persons.

Therapists perceived more success with patients who had a temporary disability more so than the other diagnosis categories. This finding may suggest that those patients with temporary disabilities actually achieved their goals at a faster rate than those patients with moderate and severe disabilities. As patients with temporary disabilities achieved their goals faster, there was no occasion to modify goals to compensate for slow progress as can be the case with more severely involved patients. It was found that persons who were admitted to the rehabilitation hospital for a longer period of time reported the cooperation work orientation more often. Perhaps persons benefit from working with others or see the benefit of working with others when they have been receiving rehabilitation for a longer period of time.

Both patients and therapists perceived that patients who had the support of a significant other after discharge were a little more successful than those who did not. This finding may suggest more about family dynamics than the actual rehabilitation process. There may be different factors that influence the relationships between patients and their significant others than relationships between patients and their family members. This would be an interesting area for future study.

In general, it seems that there were no highly significant differences among demographic categories other than what has been mentioned. Past research on goals and goal orientations did show a difference among gender. Gender differences were noted in goal orientations in education and sport literature (Duda, 1989; Jagacinski & Nicholls,

1984; Skordilis et al., 2001). Even though the current study did not find any gender differences, future study should include more purposive sampling techniques to obtain equal numbers of participants from targeted demographic groups to gain a better understanding of the impact of certain demographic attributes. In obtaining demographic information in future study, it would be important to gain more specific information regarding the disability or diagnosis since there may be cognitive and psychological issues associated with certain types of disabilities and the manner in which patients became disabled. Persons who had no control over the events leading to their disability may not feel that they have the control needed to manage their participation in a rehabilitation program. This could affect patient success.

Limitations

Although efforts were made to reduce the limitations imposed on this study, there were a few limitations that should be considered when evaluating the outcomes from the study. First, the age range of the patient sample was disproportionate. The age category of 60 years and older comprised at least half (56%) of the patient sample. As mentioned, the developmental stage of these older participants may have influenced their perceptions of success, as well as their motivational styles. It may have been better to attempt to obtain a more equal distribution of patients across all of the age groups or to focus on one age group for this study. A purposeful sampling technique in the future may provide better information about goal orientations and motivations that could then be better generalized for a specific population.

Second, there was a mixture of diagnostic groups represented in the patient sample. Patients with temporary disabilities comprised the largest group. This

disproportionate number may also have skewed the data, not really allowing for the differences in goal orientations and motivation among those patients with more severe disabilities to become evident.

Third, the data collection procedures may have inadvertently excluded patient participants who were unable to fully comprehend the details of the study despite their acceptable cognitive scores on the Functional Independence Measure. Because the consent process was complex, several patients who did not understand the details or who became too confused to continue reading the consent forms, declined to participate. Related to this observation, most, if not all, of the patient participants were taking some form of medication. It is not known how this medication may have affected their ability to complete the questionnaire. The sample that was finally obtained may have only included those patients who possessed the mental and physical energy to read, understand, and actually answer the items on the questionnaire. A more representative sample of the patient population at the rehabilitation hospital may not have been obtained. A way to check for this would have been to gather census data to observe the percentages of the patient population admitted to the hospital at that particular time. This information may have supported (or not) the representation of the patient population in the sample for the study.

The fourth limitation, in accordance with the aforementioned limitation, is the ability of this study to generalize to a larger population. Since the study was conducted with patients from only one rehabilitation hospital, these results cannot be generalized to a larger population. Further study with multiple samples is needed in order to generalize conclusions found with the study. The amount of variance accounted for in the factor

analysis was only 57%. A larger percentage would have improved the ability of the findings to be generalized. Initially, the current study was to have obtained patients from three different rehabilitation facilities. However, due to the complexity of the institutional review process and the need to protect patients' health information, it was more efficient to complete this first study at one hospital. A future study should utilize multiple sites to improve the potential for generalizing any findings.

A fifth limitation is that this study examined only those persons who have access to the kind of health care services described in the study. Relative to the entire United States population, participants in the current investigation would represent to a small percentage of that population. However, this study could serve as a starting point for inquiry that could cross into community-based health programs where it might benefit a larger proportion of the population.

Implications for Rehabilitation Medicine

The current study provided significant findings related to goal and work orientations and success in physical rehabilitation. While the findings did not uncover any new ideas or concepts for this domain, the findings did support what has been known tacitly and empirically among rehabilitation professionals. That is, that patients are more intrinsically motivated to work toward their goals especially when they feel that they are working toward the same kinds of goals as their therapists (e.g., Bradley et al, 1997; Haas, 1993; Lawler et al, 1999; Ponte-Allen & Giles, 1997) even if those goals were highly influenced by the therapist. The significance of the mastery goal orientation for this sample supports this idea. This study helps to outline goal structures more clearly in rehabilitation by introducing goal orientations as a construct worthy of study. Goal

content and goal setting may not be the only significant aspects of goals that relate to greater rehabilitation success.

The cooperation orientation was a significant work orientation for this sample. Although not widely documented for physical rehabilitation, therapists have used groups on a regular basis to provide treatment and have seen the benefits of group treatment. However, some health insurance providers do not value group treatment and have limited payment for those kinds of services. This has lead to fewer group treatment opportunities for patients. The patients in this sample were inpatients and therefore could benefit from group interaction during non-therapy hours even if group treatment was limited during therapy hours. Out-patients would not have this opportunity. It seemed that the inpatients used time outside of therapy (e.g., during meals or evenings) to interact with each other, sharing ideas, comparing their progress, and generally receiving support from one another, all which support a cooperation orientation. Information from this study would help to support efforts to improve reimbursement for therapy provided in a group format.

This study illustrates the relation between achievement goal orientations and rehabilitation success and outlines some of the cognitions patients possessed related to the rehabilitation process. This kind of study has not been done before and provides a different perspective in the examination of goal achievement in rehabilitation. Therapists and administrators at this particular hospital may use the findings to support more group treatment and group processing related to patients' adjustment to disability. In addition, therapists may support patients approach to goal achievement by using a cooperation work orientation or performance-avoid goal orientation because both of these orientations related to successful outcomes. In keeping with work done by Carol Ames (1992),

therapists can create an environment that promotes a mastery, cooperation, or performance-avoid orientation.

Having an understanding of a patient's goal or work orientation may be more useful for the therapist or health professional than for the patient. Since there was no evidence supporting the judgment that one orientation was related to success more than another, patients can keep approaching achievement in rehabilitation the way they have been doing. The influence would be in how the intervention is presented and encouraged by the health professional. If a health professional is able to conduct a treatment session toward a particular orientation, the result may be a more personally-relevant session for the patient, as well as a more efficient way of conducting the session for the health professional.

It is important to fully understand all of the aspects of achievement in physical rehabilitation because so many decisions are based on the amount of achievement a patient may or may not achieve. Payment of services is directly related to achievement. In many cases, patients are expected to achieve certain goals and a certain rate based solely on their diagnosis and payment is based on these criteria. What kind of health services are accessed after a disability is many time determined based on a person's age as well as diagnosis. None of these examples involve making decisions based on the person's voluntary capacity or willingness to participate in a rehabilitation program.

Another reason why this research is important to rehabilitation medicine is that it focuses the health care provider on the patient and variables within the person that might affect rehabilitation outcomes. Since goals are used so much in this setting, a comprehensive understanding of all the goal constructs should help inform professionals

in rehabilitation medicine and assist them in providing better services. I believe that if achievement were understood from all aspects, better health decisions could be made.

It is useful to note how this study contributes to the field of occupational therapy in particular since the therapists used in the study were all occupational therapists. As described in Chapter III, occupational therapists are concerned with promoting health and well being by engaging individuals in meaningful occupations or activities that comprise the use of our time on a daily basis. Occupational therapists receive training in teaching and learning techniques, as well as in psychological and physical aspects of engagement in occupations.

More recently, occupational scientists have concerned themselves with an in-depth study of the processes associated with actual participation in daily activities or occupations. This current study provides a useful lens through which to view participation of individuals in a variety of occupations, not just rehabilitation activities. The construct of goal orientation can be and should be applied to all areas of occupation. The World Health Organization has identified participation in daily activities as a sign of good health. When individuals discontinue participating in meaningful day to day occupations, the cause may be due to impairment in physical or psychological functioning. If occupational therapists can more fully understand the factors involved in participation, they may be able to impact the health and well being of their clients better.

Implications for Future Study

This study was an initial step in exploring the construct of goal orientation for rehabilitation medicine. An instrument to assess goal orientations in this domain was created and validated. However, it is too early to attempt to draw solid conclusions about

the usefulness of this instrument for revealing information about goal orientations for this population. Findings from the study include: particular goal orientations and the cooperation work orientation were reported, there is some relation between goal orientation and success in rehabilitation, therapists and patients define success similarly in their use of goals, and factors that were cited in prior studies to relate to success were also related to success in this study.

Future study in this area would involve replicating the study with a revised version of the Goal Orientations in Physical Rehabilitation Questionnaire (GOPRQ) omitting the items that were excluded from the current study and perhaps restructuring the remaining items. A more focused instrument, perhaps assessing fewer goal orientations may aid in providing more discreet information related to specific goal or work orientations. This would be particularly helpful in explaining the cooperation work orientation, as well as observing the effects of not partitioning the performance goal orientation into performance-avoid and performance-approach. Additional analyses of the instrument via a confirmatory factor analysis are indicated once the final version of the GOPRQ is established.

Next, multiple samples from various locations would improve the ability of the findings to generalize to a larger population. Specific analyses involving particular age groups and diagnostic groups are indicated especially to uncover other influences on goal orientations such as developmental stage/maturation or emotional adjustment to disability. Additionally, a future study could specify “first time” rehabilitation and “second time” rehabilitation to capture the impact of past experiences in rehabilitation on perceptions of ability.

Once the validity and reliability of the GOPRQ is established across multiple samples, it would be important to study how information from this instrument could be used in therapy practice. For example, would the GOPRQ be an instrument that could be given to patients at a particular point in their rehabilitation? Would it be a tool that could be used with patients who don't seem to be making the kind of progress that is expected to help health professionals understand a particular patient's motivations? Would this instrument be used in program evaluation for rehabilitation centers to provide information for planning or revising services offered?

Additional qualitative information from the patients, perhaps an ethnographic study, would aid in providing a richer description of the patient's experiences and motivations during the rehabilitation process. This kind of study may help document the fluctuations in achievement motivation that may occur throughout the rehabilitation process that was not captured in the current study.

Finally, for the fields of education and sport, this study supports the concept of goal orientations in an additional domain which strengthens the evidence of these orientations in various achievement contexts. The goal orientation patterns seem to be consistent across all three domains with some differences in how these orientations are actualized. Cognitions pertaining to the self in the rehabilitation context is an area worthy of additional study.

Appendix A

Goal Orientation in Physical Rehabilitation Questionnaire

As you complete the questionnaire, think of a time during your rehabilitation when you felt really successful and complete the sentence below. Place a mark in the box corresponding to the level to which you agree or disagree with the statement given.

In rehabilitation, I feel really successful when…	**Strongly Agree**	**Agree**	**Neither Agree or Disagree**	**Disagree**	**Strongly Disagree**
1. I am not the worst at a particular skill.					
2. I know more than other people who are like me.					
3. I don't look and feel like a child.					
4. I can help a new patient out by sharing what I have done.					
5. I can fool around and get away with it.					
6. I don't have to try hard.					
7. I see myself getting better.					
8. Other patients mess up but I don't.					
9. I can get out of doing any therapy.					
10. I learn a new skill by trying hard.					
11. I'm the only one who knows how to do something.					
12. I get a new idea about how things work.					
13. I feel like my therapist is happy with my progress.					
14. I don't look bad in front of others.					

In rehabilitation, I feel really successful when…	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
15. The other patients and I help each other figure things out.					
16. I learn something useful.					
17. I do better than my fellow patients.					
18. The other patients and I help each other improve.					
19. I can get someone else to do something for me rather than do it myself.					
20. I do the therapy so my therapists don't think I am unable to do anything.					
21. I don't mess up during therapy.					
22. My therapist and I solve a problem together.					
23. The other patients and I help each other do our best.					
24. Something I learn makes me want to practice more.					
25. I don't have anything tough to do.					

Please place an “X” on the number that best represents your answer to the following question.

1. Do you feel successful at this particular point in your rehabilitation?

1----------2----------3----------4----------5----------6----------7----------8----------9

Not Successful At all | Somewhat Successful | Very Successful

Appendix B

Therapist Questionnaire

Therapist Name: **Patient Name:**

Date:

Please place an "X" on the number that best represents your answers to the following questions.

1. Do you feel this patient is achieving success at this particular point in his or her rehabilitation?

1----------2----------3----------4----------5----------6----------7----------8----------9

Not Successful At all	Somewhat Successful	Very Successful

2. How would you rate your patient's potential for future success in his or her rehabilitation?

1----------2----------3----------4----------5----------6----------7----------8----------9

Low	Medium	High

Please list three factors that impact this particular patient's potential for success in the rehabilitation process.

a.

b.

c.

3. How well do you think your goals coincide with your patient's personal goals for rehabilitation?

1----------2----------3----------4----------5----------6----------7----------8----------9

Our Goals are Completely Different	Our goals Coincide About 50%	Our goals Coincide Completely

4. In general, how do you define success in this particular rehabilitation setting?

Appendix C

Interview Questions for Study of Achievement Goal Orientations in Physical Rehabilitation

The following is a list of questions to be asked during the patient interview in the pilot study. Questions for the full study may be modified based on results from the pilot study.

Administration Procedures Questions:

1. Did you find the questionnaire easy or difficult to complete?
2. Were there any particular items that you were unsure of how to answer?
3. Do you think you had enough time to complete the questionnaire?

Goal Orientation and Success in Rehabilitation Questions:

1. Do you have personal goals for your rehabilitation?
2. Do you think that your personal goals are the same as your therapist's goals?
3. In relation to your personal goals, what motivates you to participate in your rehab sessions?
4. How would you describe the way you go about achieving your personal goals in your rehabilitation?
5. Do you like working with other patients in your therapy sessions? Why?
6. How would you define success in your rehabilitation?

Appendix D

Demographic Data

Name:	Today's Date:
Age:	Sex: (please circle) Male Female
Race/Ethnic Group: (please circle)	Asian/Asian American Hispanic Black/African American White/Caucasian Other:
Diagnosis:	Onset Date of Disability:
Admission date:	Marital Status: (please circle) Single Married Divorced Separated Widowed
Employment Status at the time of the disability: (please write in the occupation) Employed full time in:_____ Employed part time in: _____ Not employed	
Please describe who is able to help you at home when you leave the hospital	

Appendix E

Informed Consent for Clinical Research

MedStar Research Institute

(Patient Participants)

INSTITUTION: National Rehabilitation Hospital

INTRODUCTION

We invite you to take part in a research study. The study is called "Achievement Goal Orientations in Physical Rehabilitation". Please take your time to make your decision. Discuss it with your family and friends. It is important that you read and understand several general principles that apply to all who take part in our studies:

(a) Taking part in the study is entirely voluntary;

(b) Personal benefit to you may or may not result from taking part in the study, but knowledge may be gained from your participation that will benefit others;

(c) You may withdraw from the study at any time without any of the benefits you would have received normally being limited or taken away.

The nature of the study, the benefits, risks, discomforts and other information about the study is discussed below. Any new information discovered, at any place during the research, which might affect your decision to participate or remain in the study will be provided to you. You are urged to ask any questions you have about this study with the staff members who explain it to you. The investigator (person in charge of this research study) is Sonia Lawson.

WHY IS THE STUDY BEING DONE?

You are being asked to participate in this study because you are receiving in-patient rehabilitation and are able to comment on your perceptions of the rehabilitation process. You may not participate in this study if any of the following apply to you: You are unable to communicate in writing or you have difficulty understanding the directions or following the directions.

The purpose of this study is to gather data about how people receiving rehabilitation view the kinds of goals they work toward during the rehabilitation process. This information will help therapists and other clinicians plan services more efficiently.

This research is being done because there has been no research studying this particular area in rehabilitation. Most of the research related to goals has shown that client centered treatment (having patients choose the goals to work toward rather than the therapist) is more effective. This study will look at patients' perceptions or ideas about what influences decisions about what goals to work toward.

HOW MANY PEOPLE WILL TAKE PART IN THE STUDY?

About 200 people will take part in this study, in this geographical area. For the pilot study, approximately 15 patients will be recruited.

WHAT IS INVOLVED IN THE STUDY?

If you take part in this study, you will be asked to complete a questionnaire and a demographic data form that will give the investigator information about how you think about achieving the goals you have in rehab. The questionnaire should only take about 5 minutes to complete and the demographic data form should take about 2 minutes to complete. This will not interrupt your scheduled therapy for that day.

HOW LONG WILL I BE IN THE STUDY?

We think you will be in the study for a week at the most once you complete the questionnaire and demographic data form.

The researcher may decide to take you off this study if it is too difficult for you to communicate in writing or too difficult for you to communicate your thoughts accurately.

You can stop participating at any time. However, if you decide to stop participating in the study, we encourage you to talk to the researcher first. There will be no adverse affects to you if you do decide to discontinue your participation.

WHAT ARE THE RISKS OF THE STUDY?

Participating in this study poses very little risk to you physically or psychologically. No procedures will be performed on you. No new treatments will be implemented. All data collected will be kept confidential.

ARE THERE ANY BENEFITS TO TAKING PART IN THE STUDY?

If you agree to take part in this study, there may or may not be direct medical benefit to you. We hope the information learned from this study will benefit others in the future.

WHAT ABOUT CONFIDENTIALITY?

Efforts will be made to protect your personal information to the extent allowed by law. Medical records of research study participants are stored and kept according to legal requirements. You will not be identified in any reports or publications resulting from this study. Organizations that may request, inspect, and/or copy your research and medical records for quality assurance and data analysis include groups such as:

Food and Drug Administration, MedStar Research Institute, Georgetown University, Institutional Review Board (IRB)

WHAT ARE THE COSTS?

You should not expect any one to pay you for pain, worry, lost income, or non-medical care costs that occur from taking part in this research study. No funds are available or will be paid by the National Rehabilitation Hospital, the MedStar Research Institute, MedStar Health or Georgetown University to repay you in case of injury.

You or your insurance company will be charged for continuing medical care and/or hospitalization that are not a part of the study.

RESEARCH RELATED INJURY

You will not be paid for participating in this study.

WHAT ARE MY RIGHTS AS A PARTICIPANT?

Taking part in this study is voluntary. You may choose not to take part in or leave the study at any time. If you choose to not take part in or to leave the study, your regular care will not be affected and you will not lose any of the benefits you would have received normally.

We will tell you about new information that may affect your health, welfare, or participation in this study.

A Data Safety and Monitoring Board, an independent group of experts, will be reviewing the data from this research throughout the study. We will tell you about the new information from this or other studies that may affect your health, welfare, or willingness to stay in this study.

WHO DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

For questions about the study or a research-related injury, contact the primary investigator, Sonia Lawson, at 410-290-1195 or 410-704-2313.

For questions about your rights as a research participant, contact the MedStar Research Institute. Direct your questions to the Office of Research Programs at:

Medstar Research Institute

Address: MedStar Research Institute
Office of Research Programs
6495 New Hampshire Avenue, Suite 201
Hyattsville, MD 20783

Telephone: (301)560-7339
Fax: (301)560-7336

SIGNATURES

As a representative of this study, I have explained the purpose, the procedures, the benefits and risks that are involved in this research study. Any questions that have been raised have been answered to the individuals satisfaction.

_____ _____

Signature of person obtaining the consent Date

I, the undersigned have been informed about this study's purpose, procedures, possible benefits and risks, and I have received a copy of this consent. I have been given the opportunity to ask questions before I sign, and I have been told that I can ask other questions at any time. I voluntarily agree to participate in this study. I am free to withdraw from the study at any time without need to justify my decision. This withdrawal will not in any way effect my future treatment or medical management. I agree to cooperate with Sonia Lawson and the research staff and to inform them immediately if I experience any unexpected or unusual symptoms.

_____ _____

Signature of Subject Date

_____ _____

Signature of Legally Authorized Representative Date
And Relationship To Participant (When Appropriate)

_____ _____

Signature of Witness Date

_____ _____

Principal Investigator (if not person obtaining consent) Date

Appendix E

Informed Consent for Clinical Research

MedStar Research Institute

(Therapist Participants)

INSTITUTION: National Rehabilitation Hospital

INTRODUCTION

We invite you to take part in a research study. The study is called "Achievement Goal Orientations in Physical Rehabilitation". Please take your time to make your decision. It is important that you read and understand several general principles that apply to all who take part in our studies:
(a) Taking part in the study is entirely voluntary;

(b) Personal benefit to you may or may not result from taking part in the study, but knowledge may be gained from your participation that will benefit others;

(c) You may withdraw from the study at any time without any of the benefits you would have received normally being limited or taken away.

The nature of the study, the benefits, risks, discomforts and other information about the study is discussed below. Any new information discovered, at any place during the research, which might affect your decision to participate or remain in the study will be provided to you. You are urged to ask any questions you have about this study with the staff members who explain it to you. The investigator (person in charge of this research study) is Sonia Lawson.

WHY IS THE STUDY BEING DONE?

You are being asked to participate in this study because you are an occupational therapist working in an in-patient rehabilitation center treating the sample of patients being used for the main part of the research study.
You may not participate in this study if any of the following apply to you: You feel you are unable to honestly communicate your opinions about patient performance or you feel there would be a conflict of interest.

The purpose of this study is to gather data about how people receiving rehabilitation view the kinds of goals they work toward during the rehabilitation process. This information will help therapists and other clinicians plan services more efficiently.

This research is being done because there has been no research studying this particular area in rehabilitation. Most of the studies related to goals has been to prove that client centered treatment (having patients choose the goals to work toward rather than therapists) is more effective. This study will look at clients' perceptions of the achievement situation that influences decisions about goals.

HOW MANY PEOPLE WILL TAKE PART IN THE STUDY?

About 200 patients, and about 15 therapists will take part in this study, in this geographical area. For the pilot study, approximately 15 patients and their corresponding therapists will be recruited.

WHAT IS INVOLVED IN THE STUDY?

If you take part in this study, you will be asked to complete a questionnaire that will give the investigator information about how you think about you patient's progress in rehab. The questionnaire should only take about 5 minutes to complete. This will not be a major interruption to your regular routine. If you find that it is, you may request assistance from the primary investigator.

1. Complete the therapist questionnaire and place in a sealed envelope.
2. Place sealed envelopes in the designated pick up area for the primary investigator.

HOW LONG WILL I BE IN THE STUDY?

We think you will be in the study for several weeks depending on the appropriateness of your patients for the study.

You can stop participating at any time. However, if you decide to stop participating in the study, we encourage you to talk to the researcher first. There will be no adverse affects to you if you do decide to discontinue your participation.

WHAT ARE THE RISKS OF THE STUDY?

Participating in this study poses very little risk to you physically or psychologically. No procedures will be performed on you. No new treatments will be implemented. All data collected will be kept confidential.

ARE THERE ANY BENEFITS TO TAKING PART IN THE STUDY?

If you agree to take part in this study, there will not be direct medical benefit to you. However, we hope the information learned from this study will benefit therapists and other rehab professionals in the future.

WHAT ABOUT CONFIDENTIALITY?

Efforts will be made to protect your personal information to the extent allowed by law. Records of research study participants are stored and kept according to legal requirements. You will not be identified in any reports or publications resulting from this study. Organizations that may request, inspect and/or copy your research records for quality assurance and data analysis include groups such as:

Food and Drug Administration, MedStar Research Institute, Georgetown University, Institutional Review Board (IRB)

WHAT ARE THE COSTS?

You should not expect any one to pay your for pain, worry, lost income, or non-medical care costs that occur from taking part in this research study. No funds are available or will be paid by the National Rehabilitation Hospital, the MedStar Research Institute, MedStar Health or Georgetown University to repay you in case of injury.

You or your insurance company will be charged for continuing medical care and/or hospitalization that are not a part of the study.

You may choose to receive remuneration for your contribution to this study in the form of contact hours or a gift certificate. You may choose to receive continuing education contact hours with the amount of hours dependent on the number of patients you administer the questionnaire to and the number of therapist questionnaires you complete. As an alternative, you may choose to receive a monetary compensation in the form of a gift certificate to a retail store.

WHAT ARE MY RIGHTS AS A PARTICIPANT?

Taking part in this study is voluntary. You may choose not to take part in or leave the study at any time. If you choose to not take part in or to leave the study, your regular job duties will not be affected and you will not lose any of the benefits you would have received normally.

We will tell you about new information that may affect your health, welfare, or participation in this study.

A Data Safety and Monitoring Board, an independent group of experts, will be reviewing the data from this research throughout the study. We will tell you about the new information from this or other studies that may affect your health, welfare, or willingness to stay in this study.

WHO DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

For questions about the study or a research-related injury, contact the primary investigator, Sonia Lawson, at 410-290-1195 or 410-704-2313.
For questions about your rights as a research participant, contact the MedStar Research Institute. Direct your questions to the Office of Research Programs at:

Medstar Research Institute

Address: MedStar Research Institute
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Telephone: (301) 560-7339
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SIGNATURES

As a representative of this study, I have explained the purpose, the procedures, the benefits and risks that are involved in this research study. Any questions that have been raised have been answered to the individuals satisfaction.

_____ _____

Signature of person obtaining the consent Date

I, the undersigned have been informed about this study's purpose, procedures, possible benefits and risks, and I have received a copy of this consent. I have been given the opportunity to ask questions before I sign, and I have been told that I can ask other questions at any time. I voluntarily agree to participate in this study. I am free to withdraw from the study at any time without need to justify my decision. This withdrawal will not in any way effect my future treatment or medical management. I agree to cooperate with Sonia Lawson and the research staff and to inform them immediately if I experience any unexpected or unusual symptoms.

_____ _____

Signature of Subject Date

_____ _____

Signature of Legally Authorized Representative Date
And Relationship To Participant (When Appropriate)

_____ _____

Signature of Witness Date

_____ _____

Principal Investigator (if not person obtaining consent) Date

Appendix E

MEDICAL RECORDS RELEASE AND GENERAL AUTHORIZATION TO USE AND DISCLOSE HEALTH INFORMATION FOR RESEARCH

I agree to allow Sonia Lawson and her staff (together called "Researchers"), as well as the study sponsor, (no study sponsor applicable), others working with the sponsor to do the research its (together called "Sponsor"), and the other people or companies listed below, to use and give my personal health information that identifies me for the reason described in the Informed Consent Form used for this study and as needed to conduct the research. I also agree to allow National Rehabilitation Hospital, my doctors and my other health care providers, and others who generate or use my health information, to give my health information in my medical or other records to the Researchers and Sponsor for the purposes described below and in the Informed Consent Form used in this study. IRB Project # , Achievement Goal Orientations in Physical Rehabilitation

1. The health information that may be used for this study includes:

X All my personal information made or collected during the research described in the Informed Consent Form for this study; and

☐ All my personal information in my medical records requested by the Researchers to be able to do the research described in the Informed Consent Form for this study.

OR

☐ The following information: _____

_____

_____

2. The person(s), class(es) of persons, and/or organizations (companies) who may use, give and receive the above information include*:

☐ Every research site for this study, including the hospital, and including each site's research staff, medical staff and administrative staff;

X Health care providers who provide services to me in connection with this study;

X Laboratories and other individuals and organizations that look at my health information in connection with this study, in agreement with the study's protocol;

☐ The Sponsor and the people and companies that they use to watch over how the study is managed, run, or do the research as described above;

☐ The United States Food and Drug Administration (FDA) and other Federal or State Agencies that watch over the safety of the study and how the study is managed or run;

X The members and staff of the Institutional Review Board(s) or Ethics Committee(s) that approves this study;

X The Principal Investigator, other Investigators, Study Coordinators, and all administrative staff in charge for doing all the work for the study and other research activities;

X The Patient Advocate or Research Ombudsman (people who watch out for my best interest):

_____

_____

X Data Safety Monitoring Boards (a group of people who examine the medical information during the study) and other government agencies or review boards who watch over the safety, success and how the research is done.

☐ Others:_____

_____

_____

*If, during the course of the research, one or more of the companies or institutions above merges (becomes one company) or is bought by another company, this Authorization will remain valid.

3. **Once my health information has been given to one of the person(s), class(es) of persons, and/or organizations (companies) listed above**, there is the possibility that federal privacy laws (laws that protect the privacy to my personal health information) may no longer protect it from being given to another person, class of persons, and/or company. However, the Researchers and Sponsor have agreed to further protect my health information by using and disclosing it only for the research purposes described in the Informed Consent Form and as allowed by me in this Authorization (agreement). Also, the Researchers and Sponsor [may agree/have agreed] that no publication or presentation of the research will reveal my identity without my separate specific written permission and authorization (agreement). These limitations, if agreed to by the Researcher and Sponsor, continue even if I revoke (take back) this Authorization (agreement).

4. **Once information that could be used to identify me has been removed and my information is no longer identifiable (connected to my identity) under federal regulations,** the information that remains is no longer protected by this Authorization (agreement) and may be used and given by the Researchers and Sponsor as permitted by law to others, including for other research reasons.

5. **I understand that:**

- I have the right to refuse to sign this Authorization (agreement). While my health care outside the study, the payment for my health care, and my health care benefits will not be affected if I do not sign this form, I will not be able to participate in the research described in this Authorization (agreement) and will not receive treatment as a study participant if I do not sign this form.
- I may change my mind and revoke (take back) this Authorization (agreement) at any time. To take back this Authorization (agreement), I must write to: Sonia Lawson, 6105 Silver Arrows Way, Columbia, MD 21045. However, if I take back this Authorization (agreement), I may no longer be allowed to participate in the research or may no longer receive research-related treatment. Also, even if I take back this Authorization (agreement), the information already obtained may remain a part of the research as necessary to preserve the integrity of the research study.

6. **This Authorization (agreement) does not have an expiration (ending) date.**

7. **I will be given a copy of this Authorization (agreement) after I have signed it.**

8. I acknowledge that I have received or declined the pamphlet with the MedStar Health Notice of Privacy Practices and that this form is available for me to take with me.

_____	_____
Signature of participant or participant's legal representative	Date
_____	_____
Printed name of participant or participant's representative	Representative's authority to sign for participant

For Internal Use Only

Signature/acknowledgement of receipt of Notice of Privacy Practices not obtained because:

☐ Emergency

☐ Patient/Patient Representative declined to sign _____

☐ Patient/Patient Representative unable to sign MRI Representative

Appendix F

Sample Patient Interview Responses and Assigned Codes

Interview Question	Sample Patient Responses	Code Assigned
1. Do you have personal goals for your rehabilitation?	"Yes"	Yes
	"No"	No
2. Do you think that your personal goals are the same as your therapist's goals?	"Yes" "Probably" "Pretty much"	Yes
	"No"	No
	"I don't know"	I don't know
3. In relation to your personal goals, what motivates you to participate in your rehab sessions?	"Do what I need to get out of here" "If I don't do the rehab, I won't be able to do anything…it will be all for nothing" "I got to do what I got to do to get out of here"	Do what's needed
	"I want to be independent" "Get back to independent status"	Gain independence
	"I just want to get back to my family." "Go home"	Get back to family
	"Getting back to normal life" "Getting me back" "Make myself better" "Get back to where I was"	Getting better
	"My therapist is very motivating to me" "The therapy people are very helpful"	Therapist is motivating
4. How would you describe the way you go about achieving your personal goals in your rehabilitation?	"They set out in front of me what I need to achieve and I do what I got to do to achieve it"	Do what they tell me to do

	"I do everything the therapist wants me to do" "Try to achieve all of the assignments"	
	"Sometime during the night or after rehab, I practice them" "I think I work on my weakest points"	Think about things I need to practice
	"I want to do more than what is given to me so I heal faster" "I try to do a little more"	Do more than they ask
	"You definitely got to have some type of positive outlook" "Positive mental approach to accomplish my physical goals in rehab" "Try to keep a positive attitude and try my best"	Positive attitude
	"Try the best I can"	Do my best and try hard
	"Well, not really" "I can't think of any"	No particular approach
	"Very slowly"	Go very slowly
5. Do you like working with other patients in your therapy sessions?	"Yes, I do" "Yes, I love working with other patients" "Yes, I ain't got no problem with that"	Yes
	"It's not necessary" "It has no impact" "No, we're on different things" "No. I don't know what they're doing."	No
	"I haven't been working with the patients yet" "So far they've all been independent."	No opportunity

Why do you like working with other patients?	"We are all some kind of family" "We're comrades for life"	We become like family
	"I like talking to people" "I enjoyed meeting other people" "Conversing back and forth"	Like talking to others
	"Help everyone out" "You can help each other" "Knowing you can help someone else, helps me" "If we can help each other, then that's more therapeutic than anything else."	Help each other out
	"Keep on trying" "They [other patients] get us motivated" "It's like encouragement. You try a little harder."	Encouragement – try harder
	"They all have different view of things"	Provides different view
	"You learn more" "They may know more than I do and can tell me things"	Learn more
	"Makes me laugh and feel joyful" "Gives me joy. You're participating as a group and that makes a difference"	Makes me feel joyful
6. How would you define success in your rehabilitation?	"Walk without a walker and resuming household activities without any assistance." "Going home and not be a burden on anyone." "When I can walk" "Be able to do the things I could do before."	Independence

	"When I'm not interested in growing or developing, then that's when I want to be buried." "At least being able to do a little bit of it at all, I'm still good."	Growing and improving day by day
	"Just trying to do the best you can." "Do as much as you can." "Did my best, tried my hardest"	Working at it the best you can
	"Be able to see improvements I've made" "Progress is the most important thing of all." "Each little step is a success"	Feeling good about progress
	"I have a few more answers of what pretty much happened to me even though they don't know why."	Having a better understanding
	"Achieving what the therapists have outlined as the requirement for that day." "Being able to accomplish my weekly goals and personal goals for leaving here."	Achieve goals

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